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## CEREBRAL ANGIOGRAPHY

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CEREBRAL angiography is the procedure by which the intracranial vascular system is visualized roentgenographically following the intra-carotid injection of radiopaque dyes. The procedure was first used in 1927 by Egaz Moniz,<sup>1</sup> a Portuguese neurologist. It was not immediately accepted nor extensively used until the few years before World War II when it received widespread acceptance in Europe. It became accepted in this country after the war. Because of the inherent toxicity of the dyes originally used, the risk of the procedure did not at first seem to be worth the added information obtained, but after the pioneers demonstrated the great utility of the procedure and introduced less toxic dyes, cerebral angiography as an accessory diagnostic aid in intracranial lesions came into frequent general use.

Before Moniz used angiography in his clinic, he experimented extensively with animals and cadavers. He used many bromine, strontium, and iodine salts before finally selecting a 25 per cent solution of sodium iodide for use on his patients. This drug was not ideal because it could not be sterilized and it had to be freshly prepared before injection. There were also many unpleasant reactions from its use. In 1931 Löhr and Moniz simultaneously began using thorotrast, a 25 per cent colloidal suspension of thorium dioxide which has the same viscosity as blood. This drug caused few, if any, immediate side effects, and its use became generalized. However, thorotrast is radioactive. It is not excreted from the

body but is picked up and retained by the reticulo-endothelial system. Some concern over the radiation effect was felt since sarcomas in rats could be caused by the injection of the drug, but those who used it felt that by restricting the amount of thorotrast to 30 c.c., the long-term toxicity of the drug would be negligible. No ill effects ascribable to the use of thorotrast were reported by the early workers. However, Jacobson and Rosenbaum<sup>2</sup> reported extensive fibrosis in the reticulo-endothelial system several years following its injection, and MacMahon, Murphy, and Bates<sup>3</sup> reported a patient who developed a sarcoma of the liver twelve years after the injection of thorotrast. Because of this radioactivity, thorotrast is being used less and less frequently for cerebral angiography.

Torkildson and Engeset<sup>4</sup> in Sweden, and Gross<sup>5</sup> in this country, in 1942 began the use of diodrast in 35 per cent solution. This dye fills the smaller vessels better than thorotrast but does not give the excellent roentgenographic contrast obtained with thorotrast. Most patients experience some mild reactions to its injection, such as a murmuring sound, a flushing of the face or pain over the side of the head. Occasionally convulsions have occurred. These side effects are very infrequent, and 35 per cent diodrast is the dye now most widely used.

### Technique of Injection

The procedure is done under nembutal sedation and procaine infiltrated locally. It is wise to infiltrate the carotid bifurcation thoroughly with novocain solution to eliminate or abolish the carot-

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id sinus reflex. The dye is injected into the common carotid artery. In most clinics the artery is exposed and the puncture of the artery is made under direct vision. There is a definite

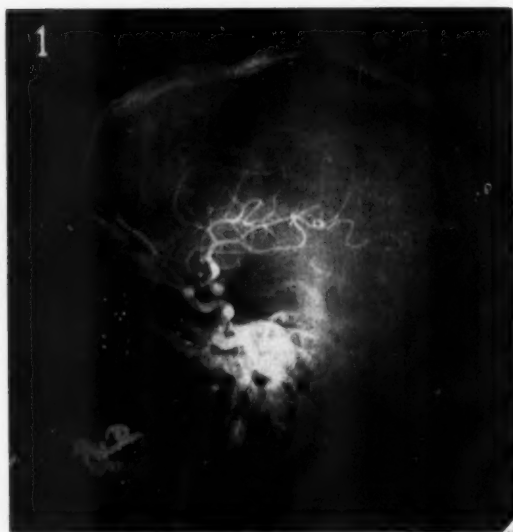


Fig. 1. Carotid angiogram in a patient with an aneurysm of the internal carotid artery. The patient was treated by trapping the aneurysm between ligatures applied on the internal carotid artery above and below the site of origin.

trend toward inserting the needle percutaneously. The procedure we have followed has been to attempt a percutaneous injection, and if not successful, to surgically expose the artery. Many surgical techniques for exposure of the artery have been described. We have isolated the common carotid by making a short transverse incision above the thyroid cartilage at the anterior edge of the sternocleidomastoid muscle. A 17- or 18-gauge needle is then inserted into the vessel. An attempt is made to push the point of the needle to the posterior part of the artery and then to turn the bevel of the needle posteriorly so that the majority of the dye, as it is injected, joins the stream of blood flowing up the internal carotid artery. A hard rubber tube with a three-way stopcock is connected to the needle, and a slow stream of saline is kept flowing through the needle until everything is in readiness, when 10 to 15 c.c. of the dye is forced into the carotid artery as rapidly as possible. Just before the injection is complete, an exposure is made to demonstrate the arterial tree, and three seconds later a second exposure is obtained in order to visualize the ve-

nous channels. The circulation time from common carotid to internal jugular through the internal carotid is about four seconds, and through the external carotid this time is about six seconds. Some persons slow this circulation down by compressing the jugular during the procedure, others by occluding the common carotid below the needle.<sup>1</sup> So far we have felt that these measures are unnecessary and complicate the procedure.

The technique of injection of the vertebral artery is similar to that of the carotid except for the site of injection. The vessel is visualized as it arises from the subclavian artery. It is the first branch and transverses in a cephalad direction. The needle is inserted as described above, and 10 to 20 c.c. of diodrast are injected and roentgenograms made. Both lateral and anteroposterior views are obtained.

#### Clinical Interpretation

*Aneurysms.*—The most frequent locations of aneurysms of the cerebral vessels are at the bifurcations of the large basal vessels, such as the junction of the internal carotid with the anterior or middle cerebral artery. Less frequent are aneurysms at the junction of the carotid with the anterior or the posterior communicating artery or on the internal carotid artery itself.

With arteriography, both the location and size of the aneurysm may be ascertained. Occasionally the size of the aneurysm as seen in the angiogram is considerably smaller than that seen at the time of operation. This is due either to a clot of blood within the aneurysm or to the neck of the sac being only partially filled with the dye. Occasionally the neck of the aneurysm may be so small that none of the contrast media enters the sac, in which case the aneurysm is not visualized.

The internal carotid artery enters the cranial cavity through the foramen lacerum. It remains extradural until it reaches the level of the anterior clinoid process. Extradural aneurysms rarely burst because they are well protected by this overlying dural sheath. Clinically they resemble slowly growing neoplasms and must be differentiated from parasellar tumors. An aneurysm in this location (extradural portion of the internal carotid artery) encroaches on the third, fourth, fifth, and sixth cranial nerves so that various combinations of palsies of eye movements and

hypesthesia over the face occur. Occasionally direct pressure by the aneurysm on the optic chiasm or nerve results in visual abnormalities. The aneurysm may produce erosion visible in roent-

by occluding the vessel both proximally and distally to the lesion. If the aneurysm is located below the origin of the posterior or anterior communicating arteries, the therapy of choice is li-



Fig. 2. Carotid angiogram in a patient with hydrocephalus. Note the wide arc of the anterior cerebral artery as it curves around the lateral ventricle.

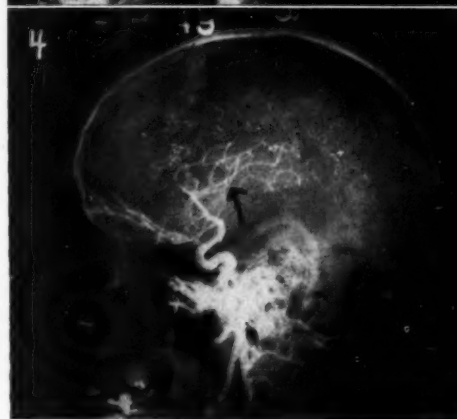


Fig. 4. Carotid angiogram showing upward displacement of middle cerebral vessels by a temporal lobe glioma.

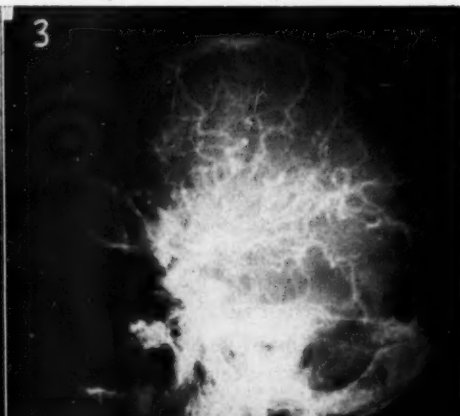


Fig. 3. Carotid angiogram in a patient with an angioma over the surface of the brain.



Fig. 5. Carotid angiogram in the same patient as in Figure 4, showing upward displacement of the middle cerebral artery as seen in an anteroposterior view.

genograms in the parasellar region. A definite differential diagnosis between aneurysm and parasellar tumor can usually be made preoperatively by angiography.

Aneurysms arising on the internal carotid artery or its branches, after the artery has pierced the dura at the level of the anterior clinoid process, may produce no symptoms until they rupture. They are usually located on the posterior aspect of the carotid siphon.

The surgical treatment of intracranial aneurysms consists of either occluding the stalk or neck of the aneurysm or trapping the aneurysm

gation of the carotid artery in the neck, which occludes the proximal flow of blood, and then occluding the vessel intracranially distal to the aneurysm. Ligation of the carotid artery in the neck does not embarrass an aneurysm arising distal to the communicating vessels. Aneurysms in this location are best treated by an intracranial approach.

**Brain Injuries.**—Löhr<sup>6</sup> has studied angiographically 1,000 patients with skull fractures. He classifies brain injuries as (1) "commotio cerebri" and (2) "contusio cerebri." In the commotio

cerebri group he found very narrow constricted vessels on the injured side and interpreted this as due to brain swelling or possibly to vascular spasm. In the contusio cerebri group he observed an increased resistance to injection of the dye and noted that the vessels were broad and flat. Angiograms in patients with subdural or extradural hematomas reveal the vessels to be displaced away from the lateral wall of the skull.

**Brain Tumors.**—Brain tumors are localized by (1) displacement of the normal vessels supplying the brain, (2) enlargement of afferent vessels to a tumor or efferent vessels from a tumor area, and (3) pathological changes of blood circulation within the tumor itself.

The arteries of the brain lie on the surface and normally take a tortuous course as they follow the cerebral convolutions. A space-occupying tumor will tend to displace the vessels away from its center. Also as the tumor enlarges, the overlying cortical convolutions become flattened and the arteries become stretched and thin, separated from each other, and follow straight courses around the area of localized enlargement. The cerebral veins may be displaced by the tumor mass or engorged due to the slowing of cerebral circulation resulting from increased intracranial pressure, but the extreme variability of the venous drainage in normal brains makes their displacement only of confirmatory value in diagnosing space-occupying lesions.

Tumors produce characteristic abnormalities visible in angiograms. The basic changes will be described briefly; many intermediate forms, of course, exist.

**Anteroposterior View.**—The ascending portion of the anterior cerebral artery is examined for displacement across the midline by a tumor lying laterally in the hemisphere. The horizontal portion of the anterior cerebral is then examined for possible elevation by a tumor mass such as a hypophyseal tumor lying beneath it. The horizontal portion of the middle cerebral artery may be elevated by tumors in the anterior portion of the temporal lobe. This is important in distinguishing these tumors from those in the posterior portion of the temporal lobe, which do not disturb this portion of the middle cerebral artery. The carotid siphon may be straightened or displaced, indicating a lesion in the vicinity of this structure.

**Lateral Views.**—An upward or downward displacement by a tumor of the pericallosal and Sylvian vessels may be visualized. This displacement occurs appropriate to the location of the tumor, either above or below the major vessels. Centrally located tumors cause direct lateral pressure and will not produce an appreciable shift in the position of these vessels. In the latter case, stretching of the arteries with elimination of the frequent curves can be significant. Vessels may be displaced in a circular fashion around a tumor. If there are no vessels within the circle, a cyst or abscess or an astrocytoma must be considered.

Ventricular enlargement, either congenital or acquired, will cause straightening and stretching of all vessels but most noticeably those in the Sylvian group. In addition, the arch of the anterior cerebral artery around the ventricle may be widened. The venogram may reveal the carotid veins to be small, due to compression resulting from the increased intracranial pressure.

The displacement of vessels as described above is a valuable method of localizing tumors, but the visualization of the tumor circulation not only more accurately defines the tumor's position but it may also make possible a histological diagnosis of the type of tumor. Moniz was the first to describe variations in tumor circulation depending upon the histological type of tumor. Engeset<sup>1</sup> believes that a more accurate histological diagnosis can be obtained by angiography than by frozen sections of the tumor. He feels sufficiently confident with angiography to ascribe a lesion as inoperable from its angiographic appearance.

**Glioblastoma Multiforme.**—Tönnis<sup>9</sup> was the first to describe the angiographic appearance of the glioblastoma multiforme. At operation he noticed arterial blood in the veins surrounding these tumors and in angiograms pointed out the frequency of intraneoplastic arteriovenous aneurysms. Because of the rapid circulation through these tumors due to these fistulas, tumor circulation may be visible in the arteriogram and not in the venogram. Several cases have been reported in which the tumor circulation of glioblastoma was seen on venograms,<sup>5</sup> but the angiographic diagnosis of glioblastoma multiforme from a roentgenogram exposed so late that the normal venous channels are filled is precarious. The cir-



culuation of most other tumors will appear on venograms. The glioblastomas have an abundant vascular supply with the vessels irregularly arranged and of irregular calibre. They show ir-

changes with huge loops of vessels 2 or 3 centimeters in length. Occasionally vascular changes are present only at the periphery of the tumor, indicating extensive central necrosis. On the veno-

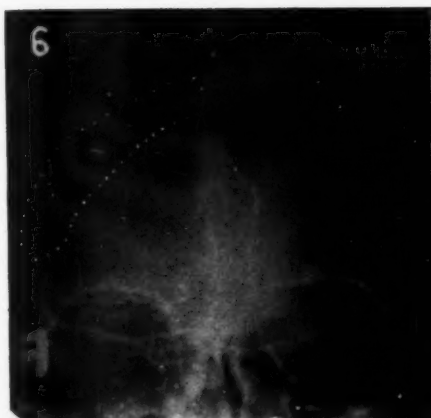


Fig. 6. Carotid angiogram in a patient with a subdural hematoma. Note the space between the cerebral vessels and the cranium.

Fig. 8. Carotid angiogram (venous phase) in a patient with a sphenoid ridge meningioma.

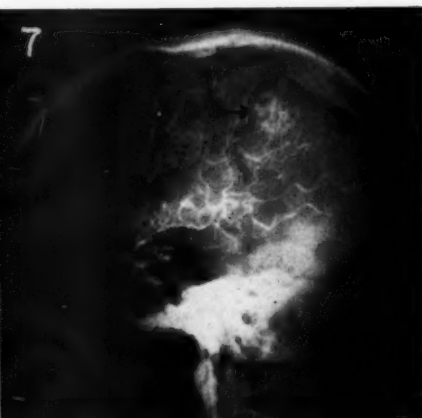


Fig. 7. Carotid angiogram in a patient with a parietal lobe tumor (meningioma of falx).

Fig. 9. Vertebral angiogram showing (1) a meningioma extending both above and below the tentorium, and (2) the source of blood supply to the tumor (from posterior cerebral arteries).

regular concentration of dye in the veins, and between the vessels are small irregular spots which may be miliary aneurysms. Large arteriovenous aneurysms and one or two abnormal veins leading away from the tumor area may be visible. The circulation may vary from a faint spotted haze of weak contrast accumulation, with small pin-head-sized vessels which cannot be followed for over 1 centimeter, to more pronounced vascular

gram in these cases there is either no dye left in the tumor area or only a light capillary haze.

*Metastatic Tumors.*—Metastatic carcinomas, like glioblastomas, have an abundant vascular supply with frequent arteriovenous aneurysms and irregularity of vessels. The presence of normal vessels arranged annularly about the lesion, with just a faint haze of circulation in the tumor

in the arteriogram but with a maximum circulation within the tumor visible in the venogram, is characteristic.

**Astrocytomas.**—Astrocytomas seldom show any vascularity in either the arterial or venous phase. Some investigators believe that vascular lakes and intraneoplastic circulation visible in venograms is indicative of an astrocytoma, but most reports do not agree with this. According to Engeset,<sup>1</sup> astrocytomas characteristically show a marked dislocation of normal vessels around the tumor with practically no vessels within the curved enclosed area. Vessels seen in the tumor are usually straight and even. Oligodendrogliomas, abscesses, cysts and cholesteatomas cannot be distinguished from astrocytomas angiographically, but with help of clinical symptoms and signs and plain roentgenograms, the diagnosis can usually be made.

**Meningiomas.**—Meningiomas present a typical picture on the angiogram. They almost always receive part of their blood supply from the external carotid artery, and if this source of blood in the tumor can be demonstrated, it is practically pathognomonic. If the tumor gets all of its blood supply from the external carotid and the internal carotid alone has been injected, the appearance of the normal vessels circling around the extracortical tumor is often diagnostic. In the arteriogram, when the tumor circulation is filled, enlarged vessels leading up to the tumor but ending in brush-like fans at the edge of the tumor may be seen. The vessels are all of constant calibre and have constant dye concentration. Because the circulation through meningiomas is slow, the venogram reveals a diffuse accumulation of dye within the tumor, sharply demarcating it from the surrounding brain tissue. Arteriovenous fistulas within the tumor are rare, and irregularities in size of vessels are not seen in meningiomas. If these features do occur in what otherwise appears to be a meningioma, a sarcomatous type of meningioma or a metastatic carcinoma must be considered.

**Vascular tumors.**—Angiomatous lesions may produce Jacksonian seizures or subarachnoid hemorrhages. On angiograms they may be confused with a glioblastoma because they contain large arteriovenous fistulas. However, angiomatous

rarely cause a shift of the midline structures or a ventricular deformity as do the glioblastomas.

**Arteriosclerosis.**—Cerebral arteriosclerosis is not an indication for angiography in itself, but it produces abnormalities which are sometimes visible in patients suspected of other lesions. There is a loss of the physiological loops and curves of normal arteries; they become straight and there is considerable variation in calibre, with narrowed and enlarged regions or even aneurysms. A sudden break in continuity of an artery due to an intravascular block is said to be characteristic of arteriosclerosis.

**Thrombosis.**—Carotid thrombosis is an entity which recently has been recognized as a fairly frequent cause of headache, psychic disturbances, hemiparesis, and aphasia. The maintenance of blood supply to the involved areas is insufficient because of poor collateral circulation. No dye can be injected into a thrombosed carotid artery, of course, but an angiogram done on the opposite side may reveal filling of both hemispheres through the collaterals in the circle of Willis.

### Indications

The indications for angiography are not closely defined because it is felt that the full value and significance of the procedure is not as yet known. In general, it is used whenever it is felt that such study would provide knowledge valuable in diagnosis and treatment of the intracranial lesion.

Angiography is used routinely in patients with subarachnoid hemorrhage in order to ascertain the site of the vascular rupture. It is often done bilaterally because lateralizing signs may be minimal and the side first injected reveals no abnormality. Poppen injects patients with subarachnoid hemorrhage twenty-four to forty-eight hours after aneurysmal rupture, for he feels that he cannot inject the dye fast enough through an 18-gauge needle to raise the pressure significantly within an aneurysm. Others prefer to wait four to six weeks following the accident in order to provide time for the site of rupture to heal. We have progressively shortened the interval between hemorrhage and angiogram until it has now been reduced to four days. The reason for shortening this interval is twofold: (1) to decrease the period of hospitalization, and (2) to treat the aneurysm before recurrent rupture with possible fatal hemorrhage.

## CEREBRAL ANGIOGRAPHY—FRENCH AND BLAKE

TABLE I. DATA ON 100 CONSECUTIVE ANGIOGRAMS

Indication	Total No.	Unilateral	Bilateral	Positive	Negative
Subarachnoid hemorrhage	42	23	19	6	36
Suspected brain tumor	32	32	0	0	32
Verified brain tumor	21	21	0	13	8
Head injury	2	2	0	1	1
To study circulation of tumor	3	3	0	3	0
Total	100	81	19	23	77

Angiography is used on patients with suspected brain tumors in whom the side of the lesion is known and in whom ventriculographic studies are deemed inadvisable or are found to be unsatisfactory for tumor localization. In addition, angiography is used on patients in whom it is anticipated that it would be advantageous to know either the histological type of tumor or the source of the blood supply to the tumor.

### Results

Included in this report are 100 consecutive angiograms performed from 1939 to 1949. The majority of them have been made during the last three years. The carotid artery was injected in ninety-six and the vertebral in four cases. From 1939 to 1945 the open technique of injecting the vessel was used. As the technical aspects of injection of the contrast media as well as the timing and amount of roentgen exposure became standardized, the percutaneous or closed method of injection has been used in increasing proportions. In the last thirty angiograms, twenty have been made with percutaneous injections, and only after the percutaneous method has been unsuccessful has the open method been used in these recent cases.

Thorotrast was used as the contrast media in ten cases, neo-iopax in nine, and diodrast in eighty-one cases. The use of thorotrast was discontinued because of the dangers of radioactivity even though it seemed to provide greater contrast than other media. The use of neo-iopax was discontinued because its injection was associated with a convulsive seizure in four of the nine cases in which it was used. A 35 per cent solution of diodrast has been the media of choice because of the paucity of reactions observed with its use. Irrespective of the type of solution injected, 50 per cent of the patients experienced disagreeable sensations over the side of the head, with visible ipsilateral flushing of the face. Two per cent of the patients experienced tingling in the contralateral extremities.

Table I reveals the indications and results of the angiograms included in this series. Thirty-two were performed on patients suspected of having a brain tumor. These patients were diagnostic problems, the history or neurologic examination suggesting the possibility of a tumor, but in whom the routine diagnostic procedure such as roentgenograms and electroencephalograms were of little help in settling the problem. In none of the thirty-two was there angiographic evidence of a neoplasm. Angiograms were performed on twenty-one patients with verified brain tumors, and in thirteen (62 per cent) of these there was angiographic evidence of the location of the lesion. The histological type of tumor was meningioma in six cases, angioma in one case, glioma in five cases, and granuloma in one case. In three patients angiograms were made in order to study the blood supply of previously verified tumors. The purpose of the study was to ascertain the most feasible method of surgical attack, and in all cases it did furnish the desired data. Angiograms were made on forty-two patients with evidence of subarachnoid hemorrhage. In six (14 per cent) the location of the aneurysm was determined. Two patients with head injuries were subjected to angiography, and in one there was evidence of a subdural hematoma. In the other patient the study was normal.

### Summary

1. A series of 100 angiograms is reported.
2. Demonstrable evidence of a tumor was present in 62 per cent of the patients with verified brain tumors.
3. Demonstrable evidence of an aneurysm was present in 14 per cent of the patients with subarachnoid hemorrhage.
4. Angiography has been of definite value as an accessory diagnostic aid.

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## NEVOXANTHO-ENDOTHELIOMA

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**N**EVOXANTHO-ENDOTHELIOMA was the term used by McDonagh<sup>6</sup> in 1912 to describe an odd type of xanthoma characterized by the development, early in life, of a group or groups of yellowish or yellowish-brown papules or nodules, chiefly on the extensor surfaces. McDonagh described five cases and included some others which had been previously reported in the literature, including those of Kobner, Thibierge, Eichhoff and Bizzozero. McDonagh concluded from a study of the histologic sections in three of his cases and the pathologic reports of four of the cases selected by him from the literature that the tumors were endotheliomas, belonging to the class of nevi, and that due to fatty degeneration a xanthomatous disorder was produced.

Under the title multiple endothelioma of the skin, Wise,<sup>10</sup> in 1919, reported an eruption in a Jewish boy, aged twenty-two months, characterized by the presence of hundreds of macular and papular lesions on the trunk and extremities. The lesions were rose-red and bluish-red, while the papules were more pronounced in color, most of them being yellowish-brown and salmon-yellow. The eruption clinically resembled urticaria pigmentosa but histopathologic examination ruled out such a diagnosis. A diagnosis of multiple endothelioma of the skin was made.

In 1930, Jacobi and Grund<sup>4</sup> described an eruption, which occurred in an infant of sixteen months, characterized by the sudden development of a large number of reddish-brown tumors on the face and body which varied in size from a pinhead to that of a pea and which were definitely raised from the surrounding skin. The lesions varied in color from flesh to pinkish-yellow to reddish-brown. The clinical diagnosis was xanthoma tuberosum multiplex, but the histologic examination showed the presence of many endothelial cells without definite xanthoma cells. The case was reported as one of nevoxantho-endothelioma.

Adamson,<sup>1</sup> in 1936, discussed various cases which had appeared in the literature under the title of nevoxantho-endothelioma and concluded

that most of them were atypical cases of xanthoma multiplex. His article was entitled, "A Note on Multiple Eruptive Xanthoma." Adamson believed that the nevoid character of nevoxantho-endothelioma had not been proved and therefore a clinically descriptive term should be applied to the disorder.

Senear and Caro,<sup>8</sup> also in 1936, reviewed the literature on nevoxantho-endothelioma and presented an additional case in a boy five and a half years of age, whose eruption was characterized by the presence of yellowish nodules on the trunk, extremities and left eyelid. The first lesion had appeared at the age of three on the left thigh as a small round reddish papule which increased in size slowly and eventually became yellowish. These authors urged caution in making a diagnosis of endothelioma of the skin and stated their belief that careful study of all cases of this type will prove that nevoxantho-endothelioma is in reality a special type of juvenile xanthoma.

In 1937, Lamb and Lain<sup>5</sup> reported an additional case of nevoxantho-endothelioma in which the eruption appeared as erythematous nodules at the age of three months in an apparently healthy child. At the age of one year the child became emaciated and presented respiratory difficulties and appeared to be in a critical condition. During the next four or five months the liver became enlarged, and lesions were shown to be present in the lungs by means of roentgen examination. The patient was found to have a disturbance of the lipid metabolism, the total fat and fatty acids being low while the cholesterol was increased. The child's condition improved, and at the age of five the patient appeared healthy. The weight was normal and many of the tumors had disappeared. Lamb and Lain felt that their case might well be related to Schüller-Christian disease on the basis of involvement of the liver and lungs. They believed that the term nevoxantho-endothelioma should be retained to describe a congenital malformation showing peculiar endothelial giant cells, xanthoma cells, histiocytes and fibroblasts, and disappearing later in childhood. They felt that nevoxantho-endothelioma might be the connecting link

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between Schüller-Christian disease and cutaneous xanthomas.

### Clinical Features

Nevoxantho-endothelioma is characterized by an eruption which is either present at birth or which appears rather suddenly in crops within the first few weeks of life. In some cases the eruption may appear at a later date, as for example in Kobner's case, in which the first lesions came at the age of two years, more appeared at fourteen, and some of them were still present at the age of twenty-seven. Thibierge reported two cases, occurring in brothers, in which the onset was at eight and fourteen years, respectively. The eruption consists of round or oval papules and nodules which vary in size from 1 to several millimeters, or larger. The lesions are raised from the surrounding skin and rather sharply demarcated. At the beginning they are usually red in color, becoming distinctly yellow or yellowish-brown. There may be but a few lesions which are frequently grouped, or they may be numerous and widely distributed. The palms, soles and flexor surfaces are usually spared. A family history may or may not be present. The lesions tend to disappear spontaneously within the first few months or years of the patient's life, although they may persist for many years, as in the cases of Kobner and Thibierge. In McKenzie's case (cited by McDonagh) the lesions were present in brothers all of their lives, and a sister and grandfather were similarly affected. The lesions may superficially resemble those of urticaria pigmentosa, although their firm consistency, lack of urtication, and histologic structure makes a definite differentiation possible. The lipoids in the blood are not increased.

### Histologic Features

Nevoxantho-endothelioma is characterized histologically by a densely packed cellular infiltration, in which the predominating type of cell is a large histiocyte with a poorly defined, pale, foamy cytoplasm and a large, oval or irregularly rounded, pale nucleus. The cells may become elongated and thin and may resemble fibroblasts. Large giant cells of the Touton type are encountered, each consisting of a peripheral ring of ovoid nuclei surrounding a pale central cytoplasm. According to Ormsby and Montgomery,<sup>7</sup> foam cells and endothelial giant cells are also seen. Sections

stained with Sudan III show the presence of many droplets of lipoids throughout the zone of infiltration as well as within the giant cells.



Fig. 1. Nevoxantho-endothelioma. The patient developed multiple yellowish-brown nodules on the scalp, face, trunk and extremities at the age of six months. Most of the lesions had undergone involution by the time the child was two years of age.

### Report of Cases

*Case 1.*—Baby J. T., aged two months, was first seen on October 15, 1946. Two subcutaneous tumors had been present at birth, one in the left scapular area and one on the posterior surface of the left thigh.

Examination showed a firm, yellowish-brown nodule, 2 cm. in diameter with superficial ulceration, on the posterior surface of the left thigh. The lesion over the scapular region was almost identical in size, color and consistency, except that the surface was smooth. At the request of the parents the lesions were excised. Within a few months several yellowish nodules, 2 to 4 mm. in diameter, reappeared along the scar.

*Case 2.*—Baby C. C., aged six months, was examined first on February 20, 1947. The parents stated that yellow nodules had appeared on the right side of the neck when the baby was three months of age. Within a month similar lesions appeared on the trunk and both upper and lower extremities.

On examination there were multiple firm, yellow nodules, from 1 to 3 mm. in diameter, scattered over the face, neck, arms, legs and trunk.

*Case 3.*—Baby G. K., aged five weeks, was first examined on March 14, 1947. The child was born with a few scattered yellowish nodules on the scalp, trunk and extremities. At the time of examination, the parents stated that the lesions seemed to be becoming lighter in color and smaller.

On examination there were scattered, slightly raised, nodular lesions, varying from 0.5 cm. to 2 cm. in diam-

eter, over the forehead, face, right shoulder, left breast, abdomen, scalp, back, forearms and lower extremities. The lesions varied in color from yellow to brownish-yellow and purplish-brown. The lesions on the eyelid simulated xanthoma palpebrarum.

*Case 4.*—C. P., a male infant aged six months, developed a yellow tumor, 1.5 cm. in diameter, on the right cheek shortly after birth. At the age of two and a half months another similar tumor appeared on the scalp, followed by the development of multiple small lesions on the body.

On examination there were multiple, firm, painless, yellow nodules scattered over the scalp, face and body. The largest lesion was on the right cheek and measured 2.5 cm. in diameter. Roentgenograms of the bones showed no abnormality. The blood lipoids were normal.

The histologic features in all four cases were essentially the same and consisted of a proliferation of the connective tissue and an infiltrate made up of histiocytes, endothelial giant cells, foam cells and Touton giant cells. Sections which were stained with Sudan III showed the presence of lipid droplets throughout the zone of infiltration.

### Comment

There has been considerable confusion concerning the proper classification of nevoxantho-endothelioma. Ewing<sup>3</sup> stated that the diagnosis of endothelioma should be accepted only when the evidence is clear and conclusive, since the group has been used as a "catch-all" for many miscellaneous tumors on which studies have been inadequate. He brought out the fact that several distinct new growths have acquired a wide or general acceptance as endotheliomata, only to lose their claim for recognition in this category through the more careful studies of critical observers.

Arzt,<sup>2</sup> after studying a case of nevoxantho-endothelioma clinically and histologically and after comparing it with other similar cases in the literature, regarded the disorder as a form of juvenile xanthoma.

Sweitzer and Winer,<sup>9</sup> in 1936, maintained that true endothelioma of the skin does not exist, since the origin of an endothelioma must be from endothelially lined structures such as blood or

lymph vessels; therefore, the so-called endothelioma of the external surface is either a hemangio-endothelioma or a lymphangio-endothelioma.

In our opinion, the benign course and the tendency toward spontaneous involution completely separate nevoxantho-endothelioma from Letterer-Siwe disease or Schüller-Christian disease. In the latter, systemic involvement is always present and a fatal outcome is the rule. It would seem best to classify nevoxantho-endothelioma as a peculiar and rare type of juvenile xanthoma.

### Summary

1. Nevoxantho-endothelioma is an unusual type of juvenile xanthoma, characterized by yellow or reddish nodules present at birth or developing shortly thereafter. The general health is not affected, and there is a tendency towards spontaneous involution, although the lesions may persist for several years.

2. The values for the blood lipoids are normal.

3. The histologic picture is distinctive and consists of a proliferation of the connective tissue and an infiltrate of histiocytes and endothelial giant cells. Foam cells and Touton giant cells are also present. Appropriate stains show the presence of lipoids in the infiltrated areas.

4. Four cases of nevoxantho-endothelioma are reported.

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## INGUINAL AND FEMORAL HERNIOPLASTY

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**S**URGEONS in general are an egocentric group, and an off-hand opinion as to one's hernia recurrence rate is usually to the effect that he has no recurrences. Furthermore, as a young surgeon, it has been my repeated experience that older and more experienced surgeons resent any implication that their varied techniques are anatomically and physiologically wrong. In the evaluation of any group of herniorrhaphies from a statistical standpoint of recurrence, it is important to break the group down into types of hernias repaired. The reporting of a series of herniorrhaphies with a favorable recurrence rate is valueless unless the types of hernias repaired are stipulated. A 2 per cent recurrence rate for the small indirect variety would not be remarkable, but a 2 per cent recurrence rate for the repair of direct inguinal hernias would be phenomenal. As most groin hernias are of the small indirect variety, they serve to bolster or give a false impression of the rate of recurrence in the more difficult hernias. The recurrence rate in the repair of direct inguinal hernias is said by some to be 50 per cent or more.

To the young surgeon, the galaxy of great names associated with inguinal herniorrhaphy and the almost endless number of operations for the cure of inguinal hernias are a baffling introduction to one of the oldest known afflictions of man. I know of sixty-seven recorded operations for the repair of inguinal and femoral hernias, most of which are linked with a proper name. Minor variations on these known operations are legion, and almost every surgeon has a pet trick or two which gives him confidence in his repair. As one reviews the many recorded operations for inguinal hernia, the consistent use of the inguinal ligament as the anchoring structure for the inguinal strata is evident. These numerous operations, then, are all variations upon a central theme. Dr. B. J. Anson and I, in collaboration, have repeatedly presented the anatomy of the inguinal region, demonstrating that the lower inguinal portion of the transversus layer inserts into Cooper's ligament and that there is no attachment to the inguinal ligament; also, that the inguinal

ligament is a free margin, loosely held in its slightly concave position by the fasciae. The breadth of the transversus insertion into Cooper's ligament determines the transverse diameter of the femoral ring; or, stated another way, the medial boundary of the femoral ring is the lateralmost attachment of the transversus stratum into Cooper's ligament and not the lacunar ligament, as usually stated.

With these brief introductory remarks I should like to present a concept of the pathologic anatomy of groin hernias and a method for their repair based upon the restoration of inguinofemoral anatomy to normal. For this purpose, groin hernias are divided into two groups. Group I includes only the small indirect inguinal hernias. Group II includes large indirect inguinal, direct inguinal and femoral hernias, or any combination of these, including the small indirect variety.

### Group I. Small Indirect Inguinal Hernias

The only pathologic condition present in the small indirect inguinal hernia is a congenital peritoneal diverticulum which passes through the abdominal inguinal ring and extends for a variable distance, intimately associated with the cord structures and within the sheath of the internal spermatic fascia. After opening the sac, the examining finger should be passed into the peritoneal cavity and, by a combination of palpation and inspection, the coexistence of a direct inguinal or a femoral hernia excluded. If the posterior inguinal wall is strong and the femoral ring is closed, the only problem is the removal of peritoneal sac and tightening of the abdominal inguinal ring. The sac is removed after high ligation in a conventional manner, and then the abdominal ring is tightened by one or two sutures which approximate the transversalis fascia to the anterior layer of the femoral sheath, medial to the cord structures. One fine silk suture is usually used to pick up the cord fasciae at several points and attach it to the transversalis fascia to prevent the cord from sliding back and forth through the ring, on the hypothesis that the preperitoneal fat might work its way through the ring and act as an entering wedge for the recurrence of an indirect inguinal hernia.

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The removal of the sac and the closure of the abdominal inguinal ring as just outlined completes the repair of this type of hernia. Since no other pathologic condition exists there is no need for buttressing sutures between the inguinal ligament and the conjoined tendon. The spermatic cord is dropped back against the posterior wall and the external oblique aponeurosis closed over it. Both the subcutaneous and abdominal inguinal rings are closed snugly but not too tightly so that there will be no interference with the blood supply of the testis. A general rule in this regard may be stated that after the closure of these "rings," the tip of the fifth finger should be able to pass through the ring along with the cord structures. For descriptive purposes we call this simple procedure "abdominal ring repair," and it is the most frequently used procedure since most groin hernias are of this type.

#### Group II. Method of Repair for All Other Groin Hernias

This group includes all other groin hernias or combinations thereof, and a single method for their repair will be outlined. Before discussing this group of hernias and their repair, it is necessary to establish the definition of the posterior inguinal wall. As used by this speaker, it consists only of the transversus abdominis aponeurosis and its investing fasciae which are fused into one layer in this region. The innermost layer of fascia is the transversalis fascia; the outermost is unnamed and thinner, but the spermatic cord and investing fasciae lie upon this fascia as the cord traverses the inguinal canal. The extent of the posterior inguinal wall is roughly delineated by the area known as Hesselbach's triangle, but the base of this triangle has nothing to do with the inguinal ligament. The medial portion of the base of the triangle is the insertion of the transversus abdominis aponeurosis into Cooper's ligament and the lateral portion is the continuity of the transversalis fascia with the anterior layer of the femoral sheath, where the aponeurotic fibers of the transversus layer cease. Medially, the posterior wall passes anterior to the rectus muscle as a component of the rectus sheath. Superiorly and laterally, the layer is muscular with the same investing fasciae. The reason for grouping large indirect inguinal, direct inguinal and femoral hernias under one heading is that they all encroach upon this posterior inguinal wall. The rationale

of a single method of repair is that they all represent defects in the same layer, i.e., the transversus abdominis.

A large indirect inguinal hernia encroaches upon the posterior inguinal wall from the lateral side, and the degree of destruction is directly proportional to the size of the dilated abdominal inguinal ring. In the extreme case, the entire posterior wall is destroyed and in attenuated form becomes part of the coverings of the hernial sac. In this large hernia the medial wall of the abdominal inguinal ring lies adjacent to the rectus muscle, and the inferior epigastric vessels lie behind the rectus muscle. The problem of repair is exactly the same as for the diffuse direct inguinal hernia. In the direct inguinal hernia the posterior wall is attenuated over the advancing direct hernial sac.

The mechanism of the destruction of the posterior inguinal wall in the direct and large indirect inguinal hernias is clear to everyone. Just how the femoral hernia compromises the posterior inguinal wall is a little more obscure. The transversus abdominis aponeurosis (posterior inguinal wall) inserts into Cooper's ligament from the pubic tubercle to the medial margin of the femoral ring. Whether a congenitally narrow insertion of the transversus aponeurosis into Cooper's ligament (and a correspondingly broad femoral ring) is the etiologic precipitating factor in a femoral hernia, or whether an established femoral hernia attenuates and narrows this insertion secondarily is not known. The fact remains that the defect to be repaired to prevent a femoral recurrence is to broaden this attachment into Cooper's ligament and close the femoral ring. In passing, it is worthy of note that when the femoral ring is dilated in the presence of a femoral hernia, the medial margin of the femoral ring then is bounded by the lacunar ligament, as stated in the standard textbooks of anatomy. In normal anatomy, however, the medial boundary of the femoral ring is about 1 centimeter lateral to the lacunar ligament, and, as stated before, this medial boundary of the femoral ring is the lateralmost insertion of the transversus abdominis aponeurosis (posterior inguinal wall) into Cooper's ligament.

Therefore the problem in the Group II hernias is a reconstruction of the posterior inguinal wall. When the posterior inguinal wall is destroyed, as in the large indirect and direct inguinal hernias,



all the attenuated aponeurosis and fascia are cut away until a strong superior border of the transversus stratum is obtained. Cooper's ligament is exposed throughout its extent, and the cut margin of the anterior femoral sheath is dissected free over the vessels. In dealing with a femoral hernia the procedure is slightly different, in that there is usually no attenuation of the body of the posterior inguinal wall; therefore, this layer is incised close to Cooper's ligament and the incision carried lateralward over the femoral vessels by incising the junction of the transversalis fascia and the anterior layer of the femoral sheath. This then gives adequate exposure for dealing with the femoral hernia which is pulled out into the position of a direct inguinal hernia; the inguinal ligament may be cut if necessary. All hernial sacs are dealt with in a conventional manner which need not be chronicled here.

From this point on, all three types of hernia in this group are dealt with in an identical manner. The reconstruction of the posterior wall and the closure of the defect is in effect a sliding of the transversus stratum from above where it is strong into place below and suturing it to the normal insertion. So that this transfer may be made easily and sutured without tension, a relaxing incision is made in the rectus sheath. The relaxing incision begins at the pubic crest and extends for 5 or 6 cm. superolaterally, staying as close to the midline as the line of fusion of the external oblique aponeurosis permits. It should be noted that this relaxing incision is made through the fused internal oblique and transversus abdominis aponeuroses (conjoined tendon) and deep to the external oblique aponeurosis, which is separable almost to the midline in this region. When the repair is complete, the fact that this is a relaxing incision is evident by the conversion of a narrow cleft into a triangular defect. This defect is protected posteriorly by the rectus muscle and the medial continuation of the transversalis fascia, the rectus fascia.

The reconstruction of the posterior inguinal wall proceeds in the following manner. The recently cut strong border of the transversus abdominis aponeurosis and fused fasciae is sutured to Cooper's ligament, beginning at the pubic tubercle and continuing lateralward to the femoral vein. Interrupted nonabsorbable sutures are used and placed approximately 2 millimeters apart; none

of these sutures are tied until all of these sutures are in position and the following two sutures are in place. The two sutures just referred to accomplish the transition from the deep level of Cooper's ligament to the more superficial level of the anterior femoral sheath. The first of these two sutures will unite the transversalis fascia to the pectineus fascia medial to the femoral vein and at the point where the anterior femoral sheath normally curves posteriorly to be continuous with the posterior femoral sheath. The second of these two sutures will approximate the transversalis fascia to the medialmost extent of the anterior femoral sheath. Now, the sutures are tied in the order in which they were placed, beginning at the pubic tubercle. When all these sutures are tied, the reconstruction of the posterior inguinal wall is completed by suturing the transversalis fascia to the anterior layer of the femoral sheath. This suture line is carried lateralward far enough to make a snug closure of the abdominal inguinal ring, as described under the abdominal ring repair. The spermatic cord is dropped in against the new posterior inguinal wall and the external oblique aponeurosis closed over it.

The line of suture beginning at the pubic tubercle and extending along Cooper's ligament to the femoral vein is the normal insertion of this part of the posterior inguinal wall. The only variation from normal anatomy is that this insertion is broadened to obliterate the femoral ring. The intermediary suture between the pectineus fascia and the transversalis fascia serves to close a small defect that would exist between the two suture levels and has its counterpart in normal anatomy in the fascial limitation of the medial wall of the femoral canal. The suture line which approximates the transversalis fascia to the anterior layer of the femoral sheath re-establishes this normal fascial continuity. In referring to the superior margin which is brought down and sutured first to Cooper's ligament and then to the anterior femoral sheath, two terminologies are used, but it is the same anatomic layer. In general the transversus layer is aponeurosis and fused fasciae where it is sutured to Cooper's ligament; however, lateral to this the layer becomes muscular, and so only the fascia on the deep surface of the transversus muscle (the transversalis fascia) is sutured to the anterior layer of the femoral sheath.

### Summary

The detailed anatomy of the inguinofemoral region has been published repeatedly in the past and only pertinent excerpts have been presented in this paper.

A simple method of repair of the abdominal inguinal ring for the small indirect inguinal hernia is presented.

A single operation of reconstruction of the posterior inguinal wall for the repair of large indirect inguinal, direct inguinal, and femoral hernias is presented. It is demonstrated that they are all encroachments upon the continuity of the posterior inguinal wall and therefore logically require the same operative procedure. The operation for these hernias includes the excision of attenuated aponeurosis and fascia, the sliding of a strong superior transversus layer into the defect and suturing this layer to the normal anatomic attachments, i.e., Cooper's ligament and the anterior femoral sheath.

The error of using the inguinal ligament in the repair of any inguinal or femoral hernia is demonstrated.

### Discussion

DR. HAMLIN MATTSON: The surgical world is indebted to Dr. McVay for his restudy of the anatomy of the inguinal region based on 500 dissections.

In 1898 Lotheissen, while working on a forty-five-year-old woman who had recurrent inguinal hernia, found the inguinal ligament gone. It was the era of early enthusiasm for the principles advocated by Bassini a few years before. Lotheissen recalled the description of the superior pubic ligament by Sir Astley Cooper in 1804 and sutured the conjoined tendon to it. Dr. McVay has revived this operation.

I encountered a similar situation in a soldier in World War II. The so-called conjoined tendon was flimsy and almost destroyed. I decided to turn back a flap of rectus and pyramidalis muscle, as described by Bloodgood in 1903, for the inguinal ligament. Such an improvisation seemed to fit the situation and worked out very well. While in the service I operated on thirty-five patients, twenty-two of them with direct hernias. For the indirect hernias I opened the cremaster envelope and sutured the transversalis fascia to the fascia of the femoral sheath with interrupted silk around the actual structures of the cord. I have copies of the records of these soldiers and have arranged with them to contact their physicians in due time.

Since returning from the service in 1945 and to date, I have performed seventy-four operations for inguinal hernia. Fifty-seven were indirect and fourteen direct. Of the latter, three were recurrent. All have been done according to the methods indicated above. I hope to carry out a five-year physical examination fol-

low-up on these patients. Most follow-up studies in the literature have been by letter, and the usual period has been eighteen months to two years.

DR. McVAY: I certainly am indebted to Dr. Mattson for his staunch support for the use of Cooper's ligament rather than the inguinal ligament in inguinal herniorrhaphy. His use of the rectus and pyramidalis flap gives a strong posterior wall when sutured to Cooper's ligament, but it changes the direction of the transversus fibers and it leaves a larger defect over the rectus muscle than the simple relaxing incision and the sliding of the layer as described by Rienhoff. However, this objection may be only theoretical, and I know of other surgeons who are using the rectus flap in their Cooper's ligament repair.

DR. HAMLIN MATTSON: Early in my experience with the rectus flap I noticed separation at the hinge in some cases. Subsequently I have added a suture line at the hinge between the flap and the tendinous insertion of the rectus muscle.

DR. CARL O. RICE: We have come to the conclusion that there are only six or eight fundamentally different operative procedures designed for the repair of inguinal hernias. Most of these fundamental procedures aim to narrow the internal ring, reinforce the floor of the canal, and change the contour of the inguinal canal.

Bassini did this by approximating the conjoined tendon to Poupart's ligament under the cord. Bloodgood did it by pulling a portion of the rectus muscle down to this structure. Later a flap of rectus sheath was turned down and anchored to the inguinal ligament. Andrews employed the fascia of the external oblique for this purpose, imbricating one leaf under and the other over the cord. Ferguson in his first procedure sutured all of the inguinal structures over the cord, and in his second procedure brought the cord out at the inguinal ring, imbricating the external oblique and conjoined tendon all under the cord. McArthur designed the fascial strip from the locally available external oblique fascia, using these as suture material for any type of procedure which he chose to use. McVay has popularized the use of Cooper's ligament as the anchoring point.

Mattson of this society has devised a procedure in which he brings a flap of rectus sheath over the conjoined tendon, suturing it to the Cooper's ligament. Giving credit to the originators of each principle, I prefer to call this a Bloodgood-McVay procedure. Likewise, I should prefer to call other combinations by the name of the originator of each particular principle.

In reviewing the operative procedures at the St. Barnabas Hospital, we have seen described combinations of a number of different procedures, and I presume that almost every surgeon has a special modification which he has adapted to his own use.

I employ a combination of the McArthur, McVay, and Bassini procedures, using the McArthur fascial strip for suture material. Two of these strips are left attached at the pubic tubercle, and one at the muscle end. With the first strip the transversalis fascia is sutured to

Cooper's ligament, thus reinforcing the approach to the floor of the inguinal canal, over which a direct hernia must pass before it can force itself out through the floor of the canal. The additional portion of this strip or the second strip approximates the conjoined tendon to Poupart's ligament (Bassini), and closes the roof of the canal over the cord in its distal third. The third strip, attached at the muscular end, closes the rent in the lateral portion of the external oblique fascia, thereby restoring the anatomical relationship of the cord and inguinal canal.

DR. McVAY: I made no special reference to suture material other than the fact that I use non-absorbable sutures. My objection to fascial sutures is that the usual fascial suture needle is so large that damage may be done to the transversus layer in making the closure. Cooper's ligament is certainly thick and strong enough to withstand any size needle or suture.

DR. L. C. CULLIGAN: I know of no speaker before the Minneapolis Surgical Society who has provoked so much discussion and argument as Dr. McVay has. I think that is an indication of the keen interest every surgeon has in the problem of hernia. However, it is safe to say that no matter which side of the argument we may take, we are all agreed that Dr. McVay has made his mark in the literature of hernia and that his name will go down with Bassini, Halsted, McArthur, Ferguson and others who have contributed much to our knowledge of this subject.

If Dr. McVay is correct in his thesis that Poupart's ligament is a weak structure and inadequate for use in the repair of inguinal hernia, he has certainly brought something new. I know that Dr. McVay will be the first to admit that his type repair is more difficult than the usual repair, because in doing it one has to work in a deeper hole. In the fat person, who is especially prone to direct hernia, it has definite technical disadvantages. Also, it is more hazardous, in that one must work close to the femoral vessels and there is real danger of injuring these large vessels. There is more tension involved in suturing in view of the fact that Cooper's ligament is deeper than Poupart's ligament. So, if Dr. McVay's operation is to survive, these disadvantages must be offset by real dividends in lower recurrence rates. What this will be, only time alone can tell. It will be years before accurate statistics will be available to settle this question.

When I heard of Dr. McVay's coming, I talked to Dr. Carlyle, who is now studying the hernias operated at the Veterans' Hospital. I estimate that 5,000 hernias have been done there in the past twenty years, so this should prove to be a fruitful study. About 2,000 of these should be the McArthur type of fascial repair. We started this very type of repair in 1934 and used it almost routinely in all direct and large indirect hernias.

We thought that we could throw some light on the problem of whether or not the McVay type of repair is necessary by making a study of all the recurrent hernias that had been operated there during a ten-year period from 1936 to 1946. To do this we got out all the

records of patients with recurrent hernias operated on and also all the patients with femoral hernias admitted to the hospital during the same period. In this way we were able to study 150 recurrent hernias and determine fairly definitely the point of recurrence. There were sixty patients admitted with femoral hernias during this period. Eight of these had previously been operated on for inguinal hernias on the same side. Combining these two groups, the 150 recurrent hernias and the eight femoral hernias which had previously had inguinal herniotomies, we were able to study 158 hernias. Of this group 35 per cent had recurred in the region of the internal ring, 36 per cent came back in the floor of the canal, 23 per cent at the pubis, and 5 per cent had developed a second hernia in the femoral canal. From this study it would appear that there are relatively few inguinal hernias which recur in the region of the femoral canal.

DR. McVAY: Dr. Culligan has presented a most interesting analysis of recurrences at the Veterans' Hospital. My experience is too limited for me to express an opinion upon the sites of recurrence, but in my personal series of 100 herniorrhaphies, twelve were recurrent hernias. Of these, three were indirect, seven direct, and two were femoral recurrences. I am interested to learn that the slide which Dr. Culligan presented, which shows the inguinal wall in posterior view, was taken from a text, because it demonstrates an artifact that has been perpetuated in the standard texts and atlases of anatomy. If, as this slide demonstrated, one can see the inguinal and lacunar ligaments in a posterior view of the inguinal region, then the transversus layer (posterior inguinal wall) and its insertion into Cooper's ligament has been removed.

Dr. Culligan is quite correct that it is more difficult to suture to Cooper's ligament than to the inguinal ligament, especially in a fat subject. However, with a little practice, especially by holding the preperitoneal fat down with a ribbon retractor, the operation is not difficult. On the contrary, danger of injury to the femoral vein is less likely in the Cooper's ligament repair because it is exposed in each instance and the surgeon knows exactly where it is at all times. I am sure many surgeons do not realize how close their needle comes to the femoral vein in the conventional inguinal ligament repair. Only the anterior femoral sheath separates the femoral vein from the inguinal ligament. In carrying out the lateral part of the reconstruction operation, in which the transversalis fascia is sutured to the anterior layer of the femoral sheath, the femoral vein is visualized during the placing of every suture. I should add that when difficulty is experienced in delineating the edge of the anterior femoral sheath, I frequently doubly ligate and cut the small veins which enter the external iliac or femoral vein at this point. I have had some cases of annoying bleeding when I have not done this when the veins were adherent to the sheath.

DR. O. H. WANGENSTEEN: The writings of Dr. McVay and his former associate, Professor B. J. Anson, on the anatomy of inguinal hernia are well known and



constitute an important contribution to our knowledge of hernia. Dr. McVay would have us believe that, in the repair of an inguinal hernia, it is necessary to take steps to prevent the occurrence of femoral hernia as a consequence of, or sequel to, repair of the inguinal hernia. This suggestion is not in accord with the experience of Dr. Culligan nor with our own. Dr. Donald Ferguson has just recently completed a study in our clinic of 191 patients operated upon for inguinal and femoral hernia. These patients were operated upon between January, 1940 and June, 1944, so that a period of more than three years has elapsed since the most recent operations. Of 151 patients in the group undergoing operation for inguinal hernia, in only one instance was the recurrence a femoral hernia. In other words, the problem in the repair of an inguinal hernia is the prevention of recurrence of inguinal hernia, not femoral hernia. As the studies of Dr. McVay and his associate, Professor Anson, have shown, the tethering of the inguinal ligament to the structures beneath is by no means strong; on the contrary, the attachment is surprisingly weak. Nevertheless, the nature of the fixation of the inguinal ligament between the anterior superior spine and pubic tubercle, despite its weak attachment to underlying structures, must be such as to constitute a satisfactory buttress, protecting against dissection of a hernia beneath Poupart's ligament lateral to the lacunar ligament.

Dr. Ferguson's study indicated that, in our own experience at least, the chief problem in the repair of inguinal hernia is recurrence of inguinal hernia. Dr. Ferguson found that the over-all recurrence rate following the repair of inguinal hernia in our clinic was approximately 10 per cent—a rather disconcerting observation; for indirect inguinal hernia, the incidence of recurrence was 7 per cent, for direct hernia 30 per cent! When Dr. Ferguson told me this, I thought this high recurrence rate must be owing to the circumstance that a number of the operations were done by the junior staff. Dr. Ferguson informed me, however, that such was not the case. The larger number of recurrences were to be found amongst patients operated upon by the senior staff. Of the twenty-seven patients operated upon by me, one had a recurrence. This was a seventy-nine-year-old man who was blind, who had bilateral direct and indirect inguinal hernias—the direct hernia on each side being the more important item. The recurrence in this patient was at the site of the internal ring on the side of the smaller hernia. In other words, the failure in this instance was in that component of the hernia (indirect) which should have been more easily dealt with. The conclusion therefore is inescapable, namely, I did not take as careful pains as I should have in dealing with that portion of the problem which should have been most readily resolved.

Dr. Ferguson's study indicated that our staff as a whole was partial to the Bassini operation. The operations performed by me were of the Halsted type I. As you will remember, Professor Halsted described two types of procedures; in the first, the cord was transplanted subcutaneously with complete obliteration of the

external ring. After a few years, Halsted abandoned this procedure, reverting essentially to the Ferguson operation without transplantation of the spermatic cord—the latter structure being brought out through the abdominal wall just above the pubic tubercle. In this latter type of operation (Halsted type II), the internal ring is completely obliterated.

The whole problem of inguinal hernia centers about the circumstance that the spermatic cord comes through the abdominal wall. Moreover, in the repair of the hernia, the surgeon must make some provision for the spermatic cord, at the same time trying to make a strong repair of the abdominal wall. In recurrent hernias the surgeon may divide the spermatic cord high up, thereby permitting him to make a complete closure of the structures of the abdominal wall. It is perhaps unnecessary to suggest that this expedient simplifies the problem considerably, and in the repair of difficult recurrent or sliding hernias most of us at some time or another have taken advantage of this maneuver to augment the chances of a satisfactory cure of the hernia.

The first important step in the repair of an indirect inguinal hernia is removal of and satisfactory closure of the sac. Closure with a purse string suture is rarely adequate. And certainly a broad sac should never be closed in this manner. The placement of a generous number of interrupted sutures of fine silk is just as important here as in the closure of any abdominal incision. I think it would not be an overstatement to suggest that many recurrences in indirect hernias are due to failure to obtain adequate closure of the peritoneal defect.

Now with reference to the hernioplasty, I believe the Bassini operation should be abandoned because it leaves the surgeon and the patient with the problem of maintaining both internal and external rings. Only sacrifice of the spermatic cord resolves the problem in such a manner that both internal and external rings are done away with. In the Halsted I operation, the internal ring is left and the external ring is closed; in the Halsted II or Ferguson type of procedure, the internal ring is closed and the external ring is preserved. Whereas my own personal experience with the Halsted operation has been entirely with the type I operation, I believe that inasmuch as it obliterates the external ring, this procedure is especially suitable for direct hernias; similarly, inasmuch as in the type II procedure, the internal ring is closed, this operation should be particularly suitable for indirect hernias. The problem of making provision for the spermatic cord in the repair of an inguinal hernia is essentially the same problem as making a colostomy with avoidance of an incisional hernia. Only the careful preplacement of interrupted silk sutures uniting parietal peritoneum and gut wall can prevent hernia at the site at which the gut comes through the abdominal wall. This important matter cannot be left to chance, otherwise incisional hernia will occur about the colostomy. And such, too, is the problem in inguinal hernia.

I hesitate to inflict these elementary considerations relating to inguinal hernias upon you. Yet I must confess that it was a feeling of unwillingness to see the con-



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ventional procedures for the repair of inguinal hernias set aside that prompted me to attempt some defense of them. It was a real pleasure to have had the opportunity of hearing Dr. McVay and to learn something of his enthusiasm for attaching the fascial structures of the lower abdominal wall to Cooper's ligament. Following the example of Lotheissen of Vienna, most of us have employed this scheme in the repair of femoral hernias. As Dr. McVay suggests, this maneuver strengthens the lower abdominal wall. The question is, is it necessary in the repair of inguinal hernia? The primary problem of recurrence after repair of inguinal hernia, as I see it, is failure to deal satisfactorily with the spermatic cord. I am hopeful that when Dr. McVay has had the opportunity to enlarge surgically upon his nice anatomical studies of the problem of hernia, he too will find some things worth salvaging in the conventional surgical methods for the repair of inguinal hernia.

DR. McVAY: I must agree with Dr. Wangenstein that my surgical experience is not commensurate with my anatomical experience. However, let me reiterate two anatomic facts that are violated in the Halsted I operation. First, the inguinal ligament is the anchoring structure, when the normal insertion is into Cooper's ligament medially and the lateral continuity is with the femoral sheath. Second, the Halsted I operation violates normal anatomy in changing the obliquity of the inguinal canal to one of direct emergence. There are many statistical analyses of herniorrhaphies showing excellent results but these are worthless unless the hernias repaired are listed as to type. The primary purpose of my paper tonight is to present a method of hernioplasty which repairs the defect and returns the inguinal anatomy to normal.

DR. S. E. WILLIAMS, Chippewa Falls, Wis.: I am not a member of the Minneapolis Surgical Society, but, through kindness, was invited here. I have driven 100 miles tonight to hear this Dr. McVay speak.

This is a very interesting subject. I am looking back on forty-three years, and I think I am, along with my friend in the front seat, one of the old timers. I have spent a good share of my forty-three years of practice in a rural district in Wisconsin and have operated on a number of people for hernia. Very few of our farmers and lumberjacks developed recurrences. Dr. A. J. Ochsner taught us that the simpler you did the hernia, the longer it would last. Surgeons at Augustana hospital in Chicago have abandoned silk, wire, and linen and for the past ten years have used only catgut. They have been getting fewer recurrences with catgut. Babcock of Philadelphia states that none of his cases in which he used wire developed recurrences. I can give you the names of eleven doctors in Saint Paul today who are wearing trusses following operations by some of you. There may be more in Minneapolis.

DR. McVAY: Dr. Williams has made an excellent point, which is "the simpler you do a hernia, the better." As I stated at the beginning of my paper, the small

indirect inguinal hernia needs only to have the peritoneal diverticulum removed and the abdominal inguinal ring tightened. Any additional imbricating, plicating or other sutures are not only superfluous but may damage the posterior inguinal wall so as to cause a direct or femoral recurrence. The repair of a direct inguinal or large indirect inguinal hernia is an entirely different matter, and it is in this group that the incidence of recurrence is so high. It is in this latter group that reconstruction of the posterior inguinal wall is indicated.

DR. A. E. BENJAMIN: I began surgery when one could not depend upon the suture material for hernias. We had a great deal of trouble with catgut or whatever material was used. I decided not to depend upon buried sutures. I thought it was important to build the posterior wall of the canal solidly. I put in retention sutures of silk-worm gut. I first included the external oblique, internal oblique and transversalis with mattress sutures brought through the muscles and conjoined tendon and through the shelving edge of Poupart's ligament. I was very careful to ligate the sac high and to run my finger around to see if there were any adhesions, any fat tissue to be removed, or if a direct or femoral hernia was present. I tied the mattress sutures over rolls of gauze on the skin. That made an elastic sling which allowed no cutting of sutures through the tissues. I got the patients out of bed early. In 1908 I wrote a paper on "The Ambulatory Treatment of Hernia Cases." Some patients were sent home the first day. Occasionally I would keep them in the hospital two weeks. Few surgeons have tried this method, but its continued use in my hands has been justified. The nonabsorbable sutures tied loosely over gauze rolls made it possible for patients to get around early with no danger of sutures giving way. I took the sutures out at the end of two or three weeks. Usually I would bring the external oblique beneath the cord and make one point of exit of the cord. Later, when I could depend upon the catgut, I used fine chromic catgut, No. 0 or 00, to reinforce the suture line. I imbricated the external oblique. I have operated on a femoral hernia at the same time as a direct, or a direct and an indirect simultaneously. If there is no other undiscovered hernia left, there is less chance of a recurrence. Usually I transplanted the stump of the sac with a suture through the internal oblique and fastened it over the fascia of the external oblique. I think transplantation of the sac is very important for some of the cases.

In patients with pot bellies, intra-abdominal pressure is too great, and may result in a return of the hernia. I have used Cooper's ligament of late. I did not know I was using it years ago, but in retrospect, I do think it was incorporated in some of the sutures. I got down deep on the inguinal ligament. If these fat patients are given exercises after the operation, and cut down on their diet, I believe we will have fewer recurrences.

DR. McVAY: Dr. Benjamin has emphasized a very important point, namely, that in the repair of any type of groin hernia, be sure that there is not another type of

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## ADRENAL SYMPATHOBLASTOMA (NEUROBLASTOMA)

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and

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**T**UMORS of the sympathetic nervous system are occasionally seen in the practice of ophthalmology. The medullary portion of the suprarenal gland is the site of a comparatively rare group of tumors, one of which is the sympathetic neuroblastoma or sympathoblastoma. These growths constitute a definite clinical entity seen almost entirely in infants and children and always terminate fatally. Burch<sup>2</sup> reported it was seen occasionally in adults. The disease is relatively infrequent. A summary of the literature up to 1933 disclosed only 158 reported cases.<sup>9</sup> In 1938, 105 more cases were collected by another group which brought the total, with their cases, up to 270. In 1942 Bothman and Blankstein<sup>3</sup> reported four cases. In the same year Thompson<sup>10</sup> reported three more cases. Moore and Gildersleeve<sup>7</sup> reported a case in 1943. Grier<sup>5</sup> added a case in 1944. Cox<sup>4</sup> added a case in 1948.

The clinician will see a case of ecchymosis of one or both lids, bluish discoloration of the temporal region with a definite palpable mass, exophthalmos, papilledema and roentgenological evidence of bone destruction in the skull with separation of the sutures and involvement of the long bones. Other findings are palpable masses in the abdominal cavity, rapidly increasing in size. Anemia, cachexia and weakness rapidly follow. The disease progresses, and death occurs in a few months. The average length of life after the onset of the first signs is a little over four months. The occurrence of ecchymosis of one or both lids alone or associated with exophthalmos should be enough evidence to establish a tentative diagnosis.

Although the great majority of sympathoblastomas arise from the medullary portion of the adrenal gland, other points of origin have been reported. Chandler and Norcross<sup>8</sup> reported, in a review of the literature, cases originating in the scapula, cervical sympathetics, mediastinum, thoracic cavity, sacrum, retroperitoneal region, abdominal sympathetic trunk, jejunum, intervertebral foramen and the skin of the thigh.

Some have divided these tumors into a group

first described by Pepper,<sup>6</sup> who emphasized the adrenal origin, the metastasis to the liver and the early age of onset. The Hutchinson<sup>1</sup> type oc-



Fig. 1. A case of sympathoblastoma.

curred in a somewhat older group and showed metastasis to the skull, orbits and long bones. Actually these two types are indistinguishable histologically and are an arbitrary division based on the point of metastasis.

The adrenal medulla in these tumors is soft, lobulated and highly vascular, depending on the degree of the hemorrhage.

Wright<sup>11</sup> in 1910 described these tumors histologically and showed their resemblance to cells of the sympathetic nervous system. The presence of highly undifferentiated round cells resembling lymphocytes, with the frequent tendency to formation of rosettes and the presence of fibrillae, is characteristic. It could often be confused with other highly undifferentiated neoplasms such as lymphosarcoma and round cell sarcoma when diagnosis was made from biopsy alone.

The following case report is presented as an addition to the literature (Fig. 1).

**Case 1.**—T. R., a year and a half of age, was first examined by one of us (E.A.L.) on April 28, 1948. His mother, a graduate nurse, reported that two weeks previously she had noticed a swelling over his left eyelid. There was exophthalmos and proptosis downward. The conjunctiva was normal. Pupillary reactions and fundus examination were normal, with no papilledema. The true diagnosis was not even considered at this time.

The patient was sent to a radiologist for x-ray examination of the orbit and skull, which were found normal.

Read at the spring meeting of the Winona County Medical Society.

Laboratory findings were also negative, with exception of considerable elevation of cerebrospinal pressure.

On May 2, a biopsy was taken from the mass in the orbit, and the pathologist's report was sympathoblastoma. An x-ray of the adrenals showed a mass over the left kidney in the lumbar region. This helped to verify the diagnosis of metastatic sympathoblastoma from the adrenal gland. The child became progressively worse and died in October, 1948. Permission to perform an autopsy was not obtained.

### Summary and Conclusion

A case of sympathoblastoma in a young child is presented, along with the diagnostic points to be encountered. A partial summary of the literature has been given. These cases are characterized by exophthalmos, edema<sup>3</sup> of the lids, rapid downhill course clinically and fatal termination in all cases. Microscopically the presence of small round cells, highly undifferentiated, rosettes and fibrillae are diagnostic.

Ecchymosis with proptosis in one or both eyes in children, should arouse suspicion of adrenal neoplasm.

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hernia present. Certainly the overlooking of a coexistent hernia accounts for some of our recurrences. I spend considerable time dissecting the peritoneal sac well above the fascial abdominal ring and do not feel that transposition of the neck of the sac is necessary. If the peritoneal sac is adequately freed-up, the ligated neck should retract at least 2 centimeters above the fascial abdominal inguinal ring.

DR. D. C. McKINNON: Recently the iliopubic tract has been described as a thickening of the transversalis fascia in the upper portion of the femoral sheath parallel and posterior to the inguinal ligament. It has been utilized in Dr. McVay's third phase of the repair by other surgeons. After suturing the transversalis fascia to Cooper's ligament, the transversalis fascia was sutured to the iliopubic tract lateral and anterior to the femoral vessels. Since Dr. McVay has performed so many anatomical dissections, I wish to ask him how often he finds the iliopubic tract present as a definite structure?

DR. McVAY: The iliopubic tract is a thickening of the preperitoneal connective tissue over the femoral vessels and is actually a part of the internal femoral sheath. It is always present but is not to be confused with the external femoral sheath which is a parietal or muscular fascia, e.g., in this instance, the transversalis fascia. It is the continuation of the transversalis fascia into the thigh, the anterior layer of the femoral sheath that I use in the lateral part of the reconstruction of the inguinal wall. Practically, we are perhaps talking about the same structure with different names, as is so frequently the case. Different names for the same structure or different layers with the same name have caused much of the confusion that exists today.

DR. L. H. FOWLER: If the inguinal ligament is not a satisfactory structure to suture the transversalis fascia to, why don't we get more recurrences as femoral hernias?

DR. McVAY: The only way in which I can answer Dr. Fowler, is by indirection. In my personal series of 100 hernias, of which twelve were of the recurrent type, two were femoral by virtue of their relationship to the inguinal ligament. Actually they were direct inguinal hernias as far as their relationships to the pubic tubercle and femoral vessels were concerned, the inguinal ligament having been pulled superiorly. It usually is difficult to determine the exact relationships in a recurrent direct inguinal hernia, but I have had the experience and heard others, including Dr. Mattson this evening, state that they have not found sufficient inguinal ligament remaining to do a conventional inguinal ligament repair. My principal objection to the use of the inguinal ligament is, of course, that it is not the normal insertion of the transversus layer and therefore should not be used when the normal insertion is infinitely stronger and readily available.

In closing, I wish to express my appreciation to the Minneapolis Surgical Society for the privilege of presenting my views on the subject of inguinal hernia repair. I have of necessity omitted many details of the anatomy of the inguinofemoral region and have gone over the operative procedure rather rapidly. I have also made some rather broad provocative statements intentionally to stimulate the audience to discussion. From the number of queries and opinions expressed it is obvious that the ancient affliction of hernia is still a very live subject, and I am delighted with the enthusiastic response in discussion.

## LABORATORY STUDIES OF CEREBROSPINAL FLUID IN MENINGITIS AND POLIOMYELITIS

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THE advent of specific antibiotics for the different bacterial types of meningitis makes the laboratory means of establishing the etiology of inflammation in the central nervous system indispensable to proper therapy.

The purpose of this paper is to determine the diagnostic value of various common laboratory procedures through a review of the cerebrospinal fluid findings in the cases of meningitis and poliomyelitis admitted to this hospital from 1938 through 1947. Wherever practical, our findings will be compared with the larger series of Merritt and Smith.<sup>1</sup>

During this eleven-year period, a total of 167 cases were clinically diagnosed as poliomyelitis and 110 as meningitis. The cases selected for this study had to meet the following criteria: (1) well-defined clinical symptoms, (2) adequate cerebrospinal fluid and bacteriologic studies, and/or (3) confirmation by necropsy examination.

On the bases of the foregoing, ninety-six (87.3 per cent) of the cases clinically diagnosed as meningitis and 122 (73 per cent) of the cases of poliomyelitis were selected for the review. A plausible explanation for the lower percentage of selected cases of poliomyelitis lies in the fact that mild or abortive symptoms during an epidemic may have been considered sufficient evidence to make the diagnosis, but physical findings and cerebrospinal fluid studies in our opinion were inadequate to confirm the clinical impression.

This selected group study will be reviewed from the standpoint of: bacteriology, total cell and differential cell counts, and quantitative protein, chloride and sugar determinations.

### Bacteriology

Our selection of culture media depends upon the other cerebrospinal fluid findings. If we suspect an acute bacterial meningitis and cannot find the organism in smears after concentration by means of centrifugation, we use multiple media suitable for either *Hemophilus influenza*, *Neisseria intracellularis* or anaerobic streptococci. These media include brain broth, blood agar and choco-

late agar. Half of the inoculated plates and tubes are incubated in a carbon dioxide atmosphere. If we suspect a tuberculous meningitis, the fluid after concentration by centrifugation or the pellicle, if present, is streaked on slants of Petragrani's and Hohn's or Wooley's media.

TABLE I. CAUSATIVE ORGANISM

Organism	Number	Percentage
<i>N. intracellularis</i>	37	51.3
<i>Pneumococcus</i>	17	23.6
<i>H. influenza</i>	11	15.3
<i>Streptococcus</i>	5	6.9
<i>Staphylococcus aureus</i>	2	2.8

In our series of seventy-two cases of acute purulent meningitis (Table I), *N. intracellularis* accounted for 51.3 per cent, pneumococcus for 23.6 per cent, *H. influenza* for 15.3 per cent, streptococcus for 6.9 per cent, and *Staphylococcus aureus* for 2.8 per cent. In 88.9 per cent of these cases, the organism was identified by culture methods, and of these, 9.7 per cent were postmortem examinations. In 11.1 per cent, smears alone were considered sufficient. In Merritt and Smith's series of 163 cases of acute purulent meningitis, the causative organism was meningococcus in 39.3 per cent, pneumococcus in 25.2 per cent, streptococcus in 23.9 per cent, *Staphylococcus aureus* in 7.9 per cent, and the influenza bacillus in 3.7 per cent of cases.

In our series of fifteen cases of tuberculous meningitis, six had pulmonary involvement, eight had a miliary form of the disease, and one patient had osseous tuberculosis. A pellicle formation, although not pathognomonic, was present in 66.6 per cent of cases. In no case was a positive culture obtained, which illustrates the importance of the other cerebrospinal fluid studies for differentiating tuberculous from the other types of meningitis.

### Cell Counts

It is generally agreed that a predominance of neutrophils and a high total cell count favor a diagnosis of acute purulent meningitis, while a

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predominance of lymphocytes and a relatively low total cell count favor either poliomyelitis, tuberculous, syphilitic or viral meningitis. We hoped to find a more exact rule of differentiation.

In our series of seventy-two cases of meningitis due to bacteria other than *M. tuberculosis* (Table II), 2.8 per cent had a total cell count of under 100 per cu. mm., and 6.9 per cent ranged from 100 to 1,000. In 75 per cent of the cases, the count ranged between 1,000 to 10,000, and in 12.5 per cent, between 10,000 to 20,000. The neutrophils ranged from 38 to 100 per cent of the total cell count, with an average of 91.9 per cent.

It has been our contention that a spinal fluid differential cell count level of 15 per cent lymphocytes could be used as one of the diagnostic means of differentiating the acute purulent meningitides from other inflammations of the central nervous system. On the basis of the foregoing, we found that only six (8.3 per cent) of our cases of acute purulent meningitis had a lymphocyte count above 15 per cent of the total cell count.

In Merritt and Smith's series of 152 cases of acute purulent meningitis, only 1 per cent showed a cell count of under 100. In 12 per cent of the cases, the count ranged from 100 to 1,000, from 1,000 to 10,000 in 72 per cent, and from 10,000 to 20,000 in 16 per cent. The neutrophils constituted from 90 to 95 per cent of the total.

Two cases in our series of meningococcus meningitis had a cell count of under 100, which was the result of an examination of the fluid during the first few hours of the disease.

In our series of fifteen cases of tuberculous meningitis (Table II), the cell count ranged between 50 and 500 in 86.8 per cent. The highest total cell count was 1,340 per cu. mm. The lymphocytes ranged from 72 to 98 per cent of the total cell count, for an average of 89.3 per cent. In the Boston series of eighty-four cases, the cell count was between 5 and 25 in 1 per cent, between 25 and 50 in 5 per cent, between 50 and 500 in 85 per cent and between 500 and 2100 in 9 per cent of the cases. The lymphocytes predominated and averaged 80 per cent of the total cell count.

The cell count in poliomyelitis varies with the stage of the disease and is highest in the preparalytic stage. As the disease progresses, there is usually a rapid drop. The neutrophile is frequently the predominate cell in the very early stage but is rapidly replaced by the lymphocyte.

TABLE II. CELL COUNT

Acute Purulent Meningitis	Cells Per Cubic Millimeter				
	Under 100	100 to 1000	1000 to 10,000	10,000 to 20,000	Over 20,000
Meningococcus	2	1	27	6	1
Pneumococcus	0	0	16	1	0
Influenza	0	3	7	0	1
Streptococcus	0	1	2	2	0
Staphylococcus	0	0	2	0	0

Tuberculous Meningitis	5 to 25	25 to 50	50 to 500	500 to 1,340
	0	1	13	1

Poliomyelitis	0 to 10	10 to 50	50 to 200	Over 200
	19	39	56	8

In our series of 122 cases of poliomyelitis (Table II), 32 per cent had a total cell count of between 11 and 50 and 46 per cent between 50 to 200. The highest total cell count was 530 per cu. mm. The lymphocyte count varied from 5 to 100 per cent of the total cell count, with an average of 60 per cent. In only three (3.3 per cent) of the cases was the lymphocyte count below 15 per cent of the total cell count. The rather unexpected high average percentage of neutrophils, we believe, reflects the frequent predominance of the neutrophile in the very early stage of the disease. It also illustrates the importance of repeated spinal punctures. There is no proof that repeated punctures produces a pleocytosis as the result of meningeal irritation.

In the Boston series of 109 cases of poliomyelitis, approximately 80 per cent of those punctured within the first five days of the onset showed a predominance of lymphocytes. In the same series, 33 per cent of the cases showed a cell count between 11 and 50, and 45.9 per cent between 50 and 200, with 5.5 per cent between 0 to 10, and 15.6 per cent with a total cell count of over 200.

### Protein

An increase in the total amount of protein in the cerebrospinal fluid is probably the most frequent change encountered with diseases of the brain or its meninges.

The normal quantitative protein varies between 15 and 45 mg. per 100 c.c. and for all practical purposes consists of albumin and globulin in a ratio of 5 to 1. An increased protein is usually associated with a pleocytosis. Even slight traces

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TABLE III. PROTEIN

Acute Purulent Meningitis	Mg. per 100 cc.			
	Under 45	45 to 100	100 to 500	500 to 1000
Meningococcus	2	6	29	0
Pneumococcus	0	3	13	1
Influenzal	0	3	8	0
Streptococcus	0	1	4	0
Staphylococcus	0	1	1	0

Tuberculous Meningitis	Under 45	45 to 100	100 to 500
	0	1	14

Poliomyelitis	45 or less	45 to 75	75 to 100	100 to 500
	55	48	12	7

of blood will cause an increase in the protein content. With an increase in the total protein there is an increase in the globulin fraction, which is the basis for the commonly used rough qualitative tests. The Pandy and Nonne tests are not to be depended upon between the levels of 50 and 100 mg. The quantitative protein determination is a more accurate and valuable clinical aid. A slight increase is common, but a total of over 500 mg. is rare and is seen only in meningitis, cord or brain tumor, bloody fluids and occasionally in polyneuritis. The presence of serum in the transudate, or extravasated blood, as well as a sub-arachnoid block, will cause an increase in the total protein. An increased protein associated with a pleocytosis is seen in meningitis, neurosyphilis and in the early stage of poliomyelitis. In cases of cord or brain tumor, polyneuritis and in the late stages of poliomyelitis, an increased protein without a pleocytosis is common.

In our series of seventy-two cases of acute purulent meningitis (Table III), 2.8 per cent had a total protein of under 45 mg., while 19.5 per cent ranged between 45 and 100, with 76.4 per cent between 100 and 500, and only one case showed a protein of over 500 mg. 100 c.c. A total of 97 per cent of our cases had an elevated total protein. In Merritt and Smith's series of 157 cases, the total protein was under 45 mg. in 2 per cent, while 12 per cent ranged between 45 and 100 mg. In 64 per cent of the cases it ranged between 100 and 500, with 14 per cent between 500 and 1,000, and between 1,000 to 2,000 mg. in 8 per cent. A total of 98 per cent of their cases had an elevated total protein.

In our series of fifteen cases of tuberculous meningitis (Table III), the total protein ranged

from 87 to 456 mg. per 100 c.c. with an average of 183.6. In the Boston series, the quantitative protein content in 253 fluids ranged from 25 to 1,142 mg., with an average of 200. In this same series, 99 per cent showed an increased protein.

The total protein in poliomyelitis may be normal in the early stages, but as the disease progresses, there is usually an increase for at least the first two or three weeks. In our series totaling 122 cases (Table II), the total protein ranged from 12 to 207 mg., with an average of 52.6. In 45 per cent the total protein was 45 mg. or less, with 39.4 per cent ranging from 45 to 75 mg. per 100 c.c. In comparison, the total protein in the series of Merritt and Smith, totaling 158 cases, ranged from 12 to 366 mg., with an average of 70. The total protein was 45 mg. or less in 46.7 per cent, between 45 and 75 in 27.8 per cent, between 75 and 100 in 10.1 per cent and between 100 to 500 in 15.4 per cent.

### Chlorides

The concentration of chlorides in the cerebrospinal fluid is directly related to that of the serum, being usually decreased in the latter with fever or vomiting, and increased with renal impairment. The normal cerebrospinal fluid ranges from 695 to 762 mg. per 100 c.c., with an average of 726. An increase in the protein content of the cerebrospinal fluid is accompanied by a decrease in the difference between the serum and cerebrospinal fluid chloride. This is in accordance with Donnan's equilibrium theory. In addition, a decreased serum chloride as the result of fever and an increased acidity of the cerebrospinal fluid due to bacterial metabolism may also play a role in decreasing the spinal fluid chloride.

In our series of seventy-two cases (Table IV) of acute purulent meningitis, the chloride content varied from 344 to 843 mg., with an average of 668. In 15.3 per cent of cases it was over 700, in 15.2 per cent 600 or under, and 600 to 700 in 69.3 per cent. In the series of Merritt and Smith, totaling 139 cases, the chloride content ranged from 532 to 760 mg. per 100 c.c. with an average of 649. In 10 per cent of the cases it was over 700 mg., in 14 per cent 600 or under, and 600 to 700 in 76 per cent of cases.

The reduction of chlorides is greatest in tuberculous meningitis, and in our series of fifteen cases (Table IV) it varied from 492 to 698,

## STUDIES OF CEREBROSPINAL FLUID—JOFFE AND WELLS

TABLE IV. CHLORIDE

Acute Purulent Meningitis	Mg. per 100 c.c.				
	344 to 550	550 to 600	600 to 650	650 to 700	700 to 843
Meningococcus	2	3	21	5	6
Pneumococcus	1	2	7	5	2
Influenzal	0	0	7	1	3
Streptococcus	0	2	3	0	0
Staphylococcus	0	1	1	0	0
<hr/>					
Tuberculous Meningitis	Below 500	500 to 600	550 to 600	600 to 650	Over 650
	1	1	9	1	3
<hr/>					
Poliomyelitis	0	0	0	1	121

with an average of 596, and was below 650 mg. in 80 per cent of the cases. In the Boston series of sixty cases it varied from 471 to 753, with an average of 608 mg., and was below 650 in 77 per cent of cases.

In our series of 122 cases of poliomyelitis, the chloride content ranged from 646 to 942 (Table IV), with an average of 723 mg. per 100 c.c., and in 104 fluids in the Boston series it varied from 650 to 772 mg., with an average of 720.

### Sugar

The glucose concentration in the cerebrospinal fluid appears to depend on (1) the blood sugar, (2) the permeability of the choroid plexuses and (3) the rate of glycolysis within the fluid. The glycolytic action of the bacteria and pus cells are said to be the cause of the lowered sugar content in cases of meningitis. Viruses apparently do not utilize or otherwise alter glucose levels in the spinal fluid.

In fasting individuals with a normal serum glucose, the normal range is between 50 to 80 mg. per 100 c.c. and between 50 to 100 in non-fasting individuals.

In our series of seventy-two cases (Table V) of acute purulent meningitis, the sugar content was below 50 mg. in 81.8 per cent, below 40 mg. in 73.5 per cent, below 10 in 8.3 per cent, and over 50 and 60 mg. in 12.5 per cent, respectively. In the Boston series of 154 cases, it was below 50 mg. in 86 per cent, below 40 mg. in 80 per cent, below 10 mg. in 23 per cent, and over 50 and 60 mg. in only 7 per cent, respectively.

Early in the course of tuberculous meningitis the reduction of the sugar content is usually less than in the acute purulent meningitides, but as the

TABLE V. SUGAR

Acute Purulent Meningitis	Mg. per 100 c.c.				
	Under 10	10 to 40	40 to 50	50 to 60	Over 60
Meningococcus	4	21	4	4	4
Pneumococcus	2	14	0	0	1
Influenzal	0	7	2	0	2
Streptococcus	0	4	0	0	1
Staphylococcus	0	1	0	0	1
<hr/>					
Tuberculous Meningitis	Below 10	10 to 40	40 to 50	50 to 60	Over 60
	3	11			1
<hr/>					
Poliomyelitis	Below 50	50 to 80	80 to 100	Over 100	
	7	94	20	1	

disease progresses, there is usually a progressive decrease. In our series of fifteen cases (Table V), the sugar content varied from 7.5 to 46.6 mg., with an average of 21.4, and was below 10 mg. in 20 per cent, between 10 to 40 in 73.4 per cent and between 40 to 50 in 6.6 per cent of cases. The sugar content, in 264 fluids examined by the Boston group, varied from 5 or less to 59 mg. per 100 c.c., with an average of 28. It was found to be below 10 mg. in 4.9 per cent, between 10 and 40 in 74.6 per cent, between 40 and 50 in 14 per cent, and above 50 mg. in 6.5 per cent of cases.

In our series of 122 cases (Table V) of poliomyelitis, the sugar content varied between 23 and 113, with an average of 67 mg. per 100 c.c. It was below 50 mg. in 5.7 per cent, between 50 and 80 in 77 per cent, between 80 and 100 in 16.5 per cent, and over 100 mg. in only 0.8 per cent of cases. This compares rather closely with the results found in 123 fluids examined by the Boston group in which the sugar content varied from 41 to 119 mg., with an average of 65. In 4.9 per cent it was below 50 mg., between 50 and 80 in 85 per cent, between 80 and 100 in 8.1 per cent, and over 100 in only 1.6 per cent of fluids.

### Summary and Conclusions

1. An attempt at evaluating certain common laboratory procedures has been made in connection with a selected series of meningeal inflammatory conditions, including seventy-two cases of acute purulent meningitis, fifteen of tuberculous meningitis and 122 of poliomyelitis.

2. The *N. intracellularis* was the most frequent causative organism in our series of acute purulent meningitis and accounted for 51.3 per cent of the cases. The pneumococcus was found in

23.6 per cent, *H. influenza* in 15.3 per cent, streptococcus in 6.9 per cent and *Staphylococcus aureus* in 2.8 per cent.

3. In the group of acute purulent meningitis, the total cell count was above 1,000 per cu. mm. in 90.3 per cent of cases, while in the tuberculous meningitis 86.8 per cent ranged from 50 to 500, and in 93.4 per cent of the cases of poliomyelitis the total cell count was below 200 per cu. mm. In no instance of tuberculous meningitis or poliomyelitis was the total cell count over 1,340, the predominant range of the acute purulent meningitis. However, in 2 per cent of the latter cases the count was below 100.

In conclusion, a total count of over 2,000 per cu. mm. is almost certainly caused by one of the bacteria other than the tubercle bacillus. Rarely, these same bacteria may give rise to a meningitis in the early stages of which the total count is less than 100.

4. We found that only 8.3 per cent of the acute purulent meningitides had a lymphocyte count above 15 per cent of the total cell count. Of these, one case due to *H. influenza* had a total cell count of 306, while in the five cases due to *N. intracellularis* it ranged from 3,100 to 7,225. In only 3.3 per cent of cases of poliomyelitis was the lymphocyte count below 15 per cent of the total cell count. In these three cases the total cell count ranged from 152 to 333. This, we believe, reflects the predominance of the neutrophile in the very early stage of the disease. In the tuberculous meningitis series, the lymphocyte count ranged from 72 to 98 per cent.

In conclusion, a differential count with more than 15 per cent lymphocytes greatly favors inflammations due to the tubercle bacillus or the poliomyelitis virus. These two groups hardly ever have fewer lymphocytes, but the acute suppurative meningitides occasionally do have more than 15 per cent lymphocytes. In the latter, however, the total count would in the great majority of cases be over 2,000 per cu. mm.

5. In our series of acute purulent meningitides, the total protein was between 100 to 500 mg. per 100 c.c. in 76.4 per cent of cases. In 93.3 per cent of the tuberculous meningitis it ranged from 100 to 500, and in only 5.8 per cent of poliomyelitis did it range from 100 to 500. In the latter group, 45 per cent had a normal total protein.

In conclusion, quantitative protein determinations maybe of some value in differentiating poliomyelitis from the other two causes of meningitis, but must be interpreted with care in the early cases of meningitis.

6. The chloride content was below 700 mg. per 100 c.c. in 84.7 per cent of the acute purulent meningitides. In tuberculous meningitis it was below 650 in 80 per cent of the cases. None of the 122 cases of poliomyelitis had a spinal fluid below 646.

In conclusion, the low chloride content of spinal fluid is of distinct differential value in distinguishing tuberculous meningitis from poliomyelitis. A level below 600 is almost certainly the result of the former.

7. The sugar content was 40 mg. or below per 100 c.c. in 73.5 per cent of the acute purulent meningitides, and in 93.4 per cent of the tuberculous meningitis. Only 5.7 per cent of the cases of poliomyelitis had a sugar content below 50 mg. per 100 c.c.

In conclusion, tuberculous meningitis can be differentiated with fair certainty from poliomyelitis by the almost uniformly low spinal fluid sugars in the former, and a level above 50 mg. per cent in the latter.

8. The combination of a total cell count between 25 to 500 with a predominance of lymphocytes, an increased protein with a decreased sugar and chloride content, is rarely seen in any other inflammation of the brain and its meninges except in tuberculous meningitis.

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## SARCOMA OF THE UTERUS

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**S**ARCOMA of the uterus is not new in medical literature, but due to the fact that it is comparatively rare as compared with cancer of the uterus, it has received very little attention. The first case on record was reported by C. Meyer at the Berlin Obstetrical Society in 1860, and it was described by Virchow in 1862. Very few large series of cases have been reported and these are incomplete, especially from the standpoint of end results or so-called five-year cures.

This presentation is based on the review of the records of St. Mary's Hospital covering the years of 1925 to 1947, inclusive, together with a report of a case by the author. Only seven cases occurred during these twenty-three years. For the purpose of statistics, this small group may not be of great value, but due to its rarity, even the large clinical centers do not have a large series to present. For instance, Kimbrough reports forty-three cases of sarcoma of the uterus from the department of gynecology of the hospital of the University of Pennsylvania, gathered over a period of thirty-three years. Novak found only forty-one cases over a period of twenty-five years at the Johns Hopkins Hospitals. Eighteen additional cases referred from the outside were added to this series, making a total of fifty-nine. Twenty-six thousand, nine hundred and seventy-three case specimens were studied in their laboratories during these twenty-five years. Dannreuter reported the occurrence of four cases within a period of three months in the New York Post Graduate Hospital. Previous to this, only two cases had been encountered in this hospital over a period of ten years, although 1,854 operations for fibromyomata had been performed during this time. Randall reports thirty-nine cases from the Buffalo General Hospital and the University of Buffalo. Kardash reports ten cases from the University of Maryland School of Medicine. A study of the records of St. Mary's Hospital shows that it constitutes 0.54 per cent of uterine malignancies, or a relationship of one sarcoma to sixty-four carcinomas. Kardash reports 0.48 per cent. Kimbrough found the proportion to be one to thirty; Veit, one to

TABLE I. INCIDENCE OF SARCOMATOUS DEGENERATION OF MYOMAS

Author	Incidence of Sarcoma of Myomas	No. of Cases of Sarcomas	No. of Cases of Myomas
Kimbrough	3,388	26	0.76
Frankl	1,878	38	2.02
Masson	4,322	44	1.01
Randall	5,686	39	1.04
Kardash	1,446	10	0.48
Total	14,720	157	1.06
St. Mary's	1,309	7	0.54

thirty-seven; Evans, one to forty; and Frankl, one to twenty-seven.

Sarcoma is found both in the body and in the cervix of the uterus, although more commonly in the body, due, no doubt, to the fact that it is the more common site of myomas. It is most common in the fifth decade, but it is occasionally found in the very young. Novak reports its occurrence in a child of seven months, and in one of two years. Diagnosis is rarely made before the time of operation, and usually not until the specimen is studied by the pathologist. The symptoms are varied and not specific. They more often suggest carcinoma than sarcoma. Excessive loss of blood at menses, intermenstrual bleeding, or both, may occur, especially in younger women, but absence of bleeding in the presence of the myoma does not rule it out. This is especially true when the endometrium is not involved. There may be a watery discharge which later becomes blood-tinged, and still later as a result of ulceration, foul discharge occurs, with shreds and necrosed tissue. Bleeding with the rapid increase in the size of the tumor points to sarcoma. Pain may be present in the later stages, as well as weakness, anemia, and cachexia.

Both Novak and Kimbrough report many deaths a few days after operation. In the latter's series, 47 per cent of those who died of sarcoma lived less than twelve months after operation. Many patients at St. Mary's died shortly after operation. However, Randall's follow-up shows that nine out of twenty-nine patients were found to be free of symptoms after five years.

Tumor cells may arise from any of the elements of the uterus, that is, muscle, connective tissue, epithelium, or blood vessels, as they are all of mesodermal origin. Sarcomas are classified as primary or secondary. They are classed as pri-

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mary in the absence of other myomas and in the absence of gross or histological evidence of pre-existing myoma at the site of the sarcoma, and secondary when found in myomas as a result of degeneration.

common. The organs which are the most common site of the secondary tumor are the lungs and the liver. Gessner in thirty-three autopsies found metastasis in twenty-four, of which fifteen were in the lung, ten in the liver, eight in the in-

TABLE II. ANALYSIS OF CASES OF SARCOMA OF THE UTERUS  
ST. MARY'S HOSPITAL, DULUTH, MINNESOTA

Number	Age	Status	Location	Primary or Secondary	Symptoms	Treatment	Results
98610	54	Married nullipara	Endometrium	Primary	Blceding, pain, weakness	Pan-hysterectomy	Died
104905	55	Married	Myoma	Secondary	Pain, pressure in rectum	Subtotal hysterectomy	Died bowel obstruction
105393	46	Married	Myoma	Secondary	Backache, prolapse	Subtotal hysterectomy	living (12 years)
173761	50	Married multipara	Myoma	Secondary	No bleeding, weakness, anemia	Subtotal hysterectomy	Died 7 days postop.
133613	68	Married multipara	Myoma	Secondary	Blceding, pain	Subtotal hysterectomy	Died
69089	64	Married multipara	Endometrium	Primary	Bleeding,	Total, pan-hysterectomy	living (2 years)
43955	45	Married multipara	Endometrium	Primary	Bleeding,	Total, pan-hysterectomy	living (4 years)

In advanced cases, this classification is impossible, due to the invasion of all tissues. The primary tumors are three times as malignant as the secondary. The number of mitotic figures determines the degree of malignancy of each specific tumor. Novak's description of the gross specimen is as follows: "Instead of the hard, rather glistening, cut surface of a typical myoma with its characteristic whorl-like appearance, the sarcoma areas present either the 'raw pork' appearance described by Cullen, or, when necrotic changes are more marked, they present as brain-like pul-taceous, broken-down areas, with often a ragged cavity formation and perhaps hemorrhage." Dannreuther suspects malignancy in the presence of (1) unusual friability of the broad ligaments, (2) increased vascularity, (3) absence of a sharp line of demarcation between tumor and the myometrium, (4) difficulty in shelling out the tumor, (5) an opaque appearance on section, (6) an edematous appearance of the cut surface. An endometrial sarcoma may be polypoid in appearance, and may be mistaken for a benign polyp, although it is larger, denser, and more friable. In others there may be ulcerations simulating carcinoma. The grape-like sarcoma of the cervix is usually found in infants, although occasionally in adults. It is pinkish in color and edematous, and may fill the entire vagina and spread to the pelvis. It is always fatal.

Metastasis is by continuity, by the blood stream, or by the lymphatics, the blood stream being most

testines, five in the omentum, five in the kidney, and five in the pleura.

## Treatment

Total hysterectomy is the treatment of sarcoma of the uterus. Due to the fact that the condition is seldom diagnosed preoperatively, and usually not until the pathologist makes his report, in most cases a subtotal hysterectomy has been performed. In Kimbrough's series, in twenty-one of the forty-three cases, a subtotal hysterectomy had been done, and a total in only 13. In Novak's series, 36.4 per cent received subtotal hysterectomy, and 22.7 per cent, total. Of the seven cases at St. Mary's Hospital, three had panhysterectomy and four subtotal. Two of those receiving a total hysterectomy were more recent cases, probably because of the fact that this type of operation is more common now since it is a safer procedure than formerly. In one of the subtotal cases the cervix was removed one year after the original operation due to prolapse. No malignancy was found in the stump. After subtotal hysterectomy has been done, and malignancy is reported before the operation is completed, the cervix should also be removed. If sarcoma is reported after the operation has been completed, radium in the cervix, rather than a secondary operation, is the best procedure in the majority of cases. All specimens of myomas should be examined by the pathologist as soon as the uterus has been removed, in order

that the patient may receive the best treatment immediately.

### Case Report

*Case I.*—Mrs. M. P., white, a widow, aged forty-eight, complained of profuse vaginal bleeding during menstrual periods, which were of eight days duration. No bleeding occurred between periods. The menorrhagia had existed for two years. She also complained of shortness of breath on exertion, lack of energy and drowsiness. Menstruation had begun at nineteen, was regular, and of a twenty-eight-day type. There was one living child, who was mentally subnormal. Two miscarriages had taken place. The family history was of no special interest; there had been no malignancy. The patient stated that she had always been well, and had had no operations.

Physically she was a large woman weighing 175 pounds, with a rather sluggish mentality. She had a scanning speech, a pasty, anemic appearance with puffiness of the lower lids; a dry and thickened skin, and thin and silky hair. Her eyes were normal, and the pupils reacted to light and accommodation. There was dental caries. The thyroid was not palpable. The heart and lungs were normal to percussion and auscultation. The blood pressure was 150/84. Bimanual pelvic examination disclosed the body of the uterus to be the size of the head of the newborn, and the surface was smooth. The uterus was freely movable, and the cervix was normal.

Laboratory studies revealed a hemoglobin of 38 per cent, erythrocyte count of 2,520,000, leukocytes 6,350, with a normal differential count. The urine was normal. The basal metabolism rate was minus 7. The Wassermann was 4 plus.

My clinical diagnosis was myoma of the uterus, with secondary anemia and tertiary syphilis. Due to the anemia and syphilis, it was thought best to improve her general condition before surgery. The bleeding was controlled by x-ray therapy over the pelvis. She was given antisyphilitic treatment, iron, and thyroid gland. Due to her financial status she was admitted to the county hospital and venereal clinic.

I did not see her again for a period of two years. In the meantime a diagnostic curettage had been done, and the pathologist reported normal endometrium. Her general condition was considerably improved. The hemoglobin had risen to 71 per cent, and erythrocytes totaled 3,500,000. She had had intensive antisyphilitic treatment. She was still taking thyroid and stated that she felt sluggish on discontinuing it. The size of the uterus had not increased. A subtotal hysterectomy was done. The tissues were very vascular and friable, and on dissecting the bladder from the uterus, where it was adherent to the fundus, a 2-inch long tear occurred in the bladder wall.

The pathologist, Dr. George Berdez, reported a spherical uterus weighing 1,370 grams, and measuring 15 by 15 by 13.5 centimeters. Grossly, it consisted almost entirely of a large, rounded, solid gray fibrous tumor mass with a homogenous firm gray cut surface. The histologic diagnosis was leiomyosarcoma of a grade II malignancy.

Two months after the operation, her homoglobin was 80 per cent, and the her cell count was 4,090,000. Seven months later there were symptoms of metastasis, the most significant of which were a cough and pain in the chest. X-ray films demonstrated a consolidation of the upper three-fourths of the upper left lung, and aspirated fluid was thin and sanguinous. The patient died eleven months postoperatively from generalized metastasis. The autopsy revealed the left lung to be the region of the greatest involvement.

### Summary

A brief summary of seven cases of sarcoma of the uterus from the files of St. Mary's Hospital, a review of the literature, and a case report by the author form a basis for this presentation. This series of seven cases, accumulated over a twenty-three-year period, may seem small, but due to the infrequency of the disease, only relatively small numbers of cases are encountered. Our experience as to frequency, diagnosis, and treatment corresponds to those of larger medical centers. One of our patients survived over twelve years, another over four years, and a third over two years. The other four patients were in an advanced stage and died within one year. An immediate gross study and frozen sections, when indicated, should be made at the time of operation by the pathologist in all cases of myoma of the uterus, and if malignancy is found and a subtotal hysterectomy has been done, the cervix should also be removed. Radium may be used in the cervix if malignancy is diagnosed some time after completion of the operation.

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## THE CHILD, THE SURGEON, THE OPERATION

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**S**URGERY and psychiatry, at first glance, may seem to be strange bedfellows. The relationship is, however, not so strange in view of the growing realization of the interrelation of all the specialties in medicine. It is particularly important for surgeons and psychiatrists to co-operate. Surgeons are exacting in their requirements for their field. They can teach the psychiatrists a good deal in terms of methods in the scientific approach to problems. On the other hand, psychiatrists, out of their clinical studies and their more intimate relationships with their patients, may contribute something to the better understanding and management of surgical patients.

If there is any one outstanding difference between psychiatry and other fields of medicine, it is that the psychiatrist tries to get as complete an understanding as possible of the patients' problems in making an adequate adjustment to everyday living. If we, as physicians, regardless of our specialties, regard our function as that of helping the total person to get well, it is imperative that we learn to share our points of view.

In this paper I would like to present some of the clinical observations made over the past ten years at the University Hospitals with respect to children's reactions to operations. These children were having marked difficulty in making a satisfactory adjustment to everyday living—difficulty either precipitated by or originating from some operative procedure.

Surgical procedures are necessary. There is no question that operations on children, as well as adults, are upsetting and disturbing, traumatic not only to tissues but to the individual's psyche. As a general rule, adults are better able to tolerate surgical procedures than a good many children. I say a good many because not all children react adversely to operative procedures. In the main, children seldom share in the decision as to whether or not an operation is to be performed. That decision is usually made for them. Because children lack experience, they are considerably more dependent on others than are adults. This dependency

forces them to submit to the decisions of others. Likewise, because children lack experience, they are unable, on their own, to "test reality." They can do this only by sharing with others their reactions and fears, and often they are not encouraged to do so. Often they are not given an opportunity to express their own real feelings about the operation, and they repress them. We know these repressions result in a great amount of fantasy. Children have peculiar notions about the anatomy of the body as well as some rather strange and peculiar misconceptions of the functions of the body. Sometimes their ideas are so strange as to seem almost fantastic. All these things tend to stimulate children's fantasies, with the result their imaginations run riot. This leads to increased inner turmoil or tension, commonly called anxiety, which spells trouble.

To illustrate, I would like to describe some of the rather dramatic experiences we have had with children referred because of difficulties that stemmed from some operative procedure. I do not mean to imply that the operative procedure *per se* caused the difficulty, but in retrospect it seemed to play a significant role in the particular problem presented to us.

### Case Reports

*Case 1.*—Ann, an attractive, bright, preadolescent girl, mature for her age, was referred to the hospital because of anxiety attacks. During these attacks she would suddenly become agitated, to the point of being irrational. She would clutch her chest in the cardiac area, screaming, "I'm going to die, I'm going to die." These attacks occurred in school, on the playground, in the home, and on occasions during the night. They were becoming increasingly frequent.

The family was in modest circumstances. The father, a pleasant but dynamic, energetic individual, always seemed sure of himself. The mother was also a strong person, but since her marriage she had been compelled to assume a dependent role in the family circle. Having suffered deprivations in her early childhood, she had tried desperately to spare her children. She was anxious that they know the "facts of life." Consequently, at an early age our patient was well informed, biologically speaking. She and the mother were "very close to each other." The father, busy with his work and not at home as much as could have been desired, was not on intimate terms with his daughter.

Because of repeated upper respiratory difficulties, the

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parents had wanted the child to have a tonsillectomy. This the patient had persistently refused.

During a difficult time which the mother was having with a pregnancy, the father decided the child should have the tonsillectomy. Under protest the child visited the physician for examination. During the examination it was noted the child had a slight mole on one of her external labia.

It was decided to operate on the mole following the removal of the tonsils. Arrangements were made to admit the child to the hospital, the same one where her own mother was convalescing.

The morning for hospital admission, the child was brought by the father, who soon left. She was taken to the operating room and to all appearances was operated on successfully. However, later in the day she experienced her first spell of restlessness. Her convalescence was interrupted by the occurrence of a hemorrhage which necessitated readmission to the hospital for purposes of treatment. She was so reluctant to leave the hospital the second time that it was necessary for the father to offer her an attractive bribe.

It was shortly after return home her "spells" began.

Study of this situation revealed the presence of considerable tension between the parents, particularly regarding the management of the children. Though the parents were devoted to each other, this tension had served to disrupt the smooth workings of the household.

Work with the child finally revealed the source of her own difficulty. She had for a long time resented the mother's and father's disagreements, and in a sense felt personally responsible for a greater part of them. She was particularly resentful at having been compelled to submit to her operations. It was during her anesthesia she first felt she was going to die. "I was scared and I could hear my heart pounding so hard. I thought I was going to die."

As she began to talk these things out, she got a new perspective. Her attacks began to lessen and eventually ceased. She has been leading a successful life free of the "anxiety attacks" now for several years.

*Case 2.*—Ben, aged twelve, was admitted to the hospital with a broken leg. His father, who accompanied him to the hospital, was intoxicated. During admission proceedings the father disappeared.

Despite proper surgical management, the boy's progress was very unfavorable. In addition, he was belligerent and uncooperative. He appeared morose and unhappy.

After several interviews with this lad, it was learned he had been hit by a car while in the city with his father, who had been drunk. The lad further told about the hectic conditions which prevailed in his home because of his father's alcoholism. He worried for the safety of his mother.

The mother was interviewed during one of her frequent visits to the hospital, and the boy's story was substantiated. She further informed us that for some time she had contemplated separation proceedings but had delayed. With the realization of how much the home situation was disturbing the lad and no doubt his siblings, she decided to proceed with separation plans.

She discussed her decision fully with the lad, which resulted in a good understanding between them. From this point on, the lad made very satisfactory progress and was soon able to leave the hospital.

*Case 3.*—Cathy, aged seven, was referred to our clinic with the following complaints: unwillingness to leave her home, to attend school and to sleep alone at night. She was becoming increasingly irritable and fearful, and with increasing frequency would demand to have someone close to her, preferably her father or mother. The fact that the father lost approximately 20 pounds of weight in the month preceding referral to the hospital suggests the tremendous turmoil he personally was under due to his daughter's disturbance.

What were the circumstances which seemed important in this case? In our interviews the following story unfolded.

Our patient had been the youngest of a family of five children. She had seemed quite happy about the pending arrival of a new baby in the home. However, as the period of gestation neared its completion, the youngster witnessed the death of a favorite friend, which severely upset her. Shortly thereafter she had a severe choking spell, precipitated by a piece of candy which had accidentally lodged in her throat. This further aggravated her restlessness, but no one paid much attention to it.

While her mother was in the hospital for delivery, our patient had the misfortune of injuring her arm. She was taken to the hospital where her mother was confined, for x-ray diagnosis and the application of a plaster cast under anesthesia. No one at this time thought to suggest that the patient might wish to talk to her mother or would like a message carried to her.

Shortly after the mother returned from the hospital with a new sibling, school began. Gradually our patient became more reluctant to leave home, finally refusing to attend altogether. Coincident with this she became more nervous, slept poorly, ate poorly, and was generally unhappy.

When all corrective procedures known to the family had failed, she was brought to a physician for examination, but nothing was noted physically. A mild sedative was prescribed, to no avail. A few intramuscular injections followed. Then spanking was advised. Finally deep surgical anesthesia was induced. None of these produced any change except to increase the presenting complaints.

Repeated interviews over a period of several weeks with both parents and child resulted in considerable improvement. During our work with the patient, she repeatedly discussed her feelings about the death of her best friend, her worry about her broken arm and how fearful she felt about going to sleep. Her chief difficulty seemed to center in her erroneous belief that because so much had happened to her, she must have been a particularly bad child. Again, as in other cases, these thoughts occurred to her during her first anesthesia.

*Case 4.*—Dan, aged fourteen, was admitted to the psychiatric ward of the hospital because of excessive crying spells, during which he became very agitated. He

was the youngest child and the only boy. He and his mother had always been very close.

The onset of the spells dated from a tonsillectomy he had had at the age of seven. At that particular time the household had been considerably disturbed by financial difficulties, aggravated by considerable parental tension. The lad was fearful of his father, a feeling he still had at the time of hospitalization. His basic difficulty was so deep seated he was finally committed to a mental hospital for long-time care. As the story was finally pieced together, it was the consensus of everyone that the operative procedure was a precipitating factor in the patient's neurosis.

*Case 5.*—Ed, aged seven, was admitted to the University Hospitals after a short period in the local hospital for treatment of extensive burns. Approximately 30 per cent of the body surface was involved. Soon after admission to our hospital he became a "behavior problem." He was rebellious, irritable, negativistic and decidedly uncooperative. Skin grafting was practically impossible. No one could do anything with him or for him. Finally, however, he did find one of our resident physicians acceptable, and management moved along quite smoothly for a time. However, rotations of the staff physicians soon brought a recurrence of the difficulties.

The staff was at a loss to explain his behavior until the boy gave us a clue one day. A friend who had promised to visit the boy did not arrive. In the course of a short interview with the patient, for he was very unhappy, he blurted out, "He's just like my mother. She never keeps her promises." The lad's complaint was investigated and found to be true. The mother, a very over-solicitous person, was particularly attached to this boy. Since his accident she had been much concerned about him and had not only increased her attentions to him but also had made promises which often were not kept. Among these was the repeated assurance that she would visit him daily whenever she was in the city. A friendly but firm consultation with the mother helped her to see what she had been doing in not being honest with her boy. This she corrected, with a surprising change in the lad's behavior and convalescence from that point on.

### Comment

Further case histories could be cited. Enough have been presented to illustrate the kind of personality difficulties which may stem from operative procedures.

In our experience, it can be said with reasonable confidence that a child who later presents problems of adjustment was neurotic to some degree previously. In the cases presented there is enough evidence to justify that supposition. A potentially neurotic child is prone to be more dependent than the average, and hence, less able to handle a threatening situation.

Predisposition to become neurotically disturbed stems largely from difficulties in the home. Among

the more prominent are parental discord. Nothing is more threatening to the stability and security of the child than parental tension, whatever its classification or degree.

Difficulties arise when the child is not certain of what his parents expect of him, or when parental disagreement occurs as to what the child can or cannot do.

In some instances, as in the case of Cathy (Case 3), too much happened to the child in a short time interval. Spacing of the events might have spared the child trouble. When too many things happen to a child in too rapid succession, he is unable to cope adequately with them, and anxiety becomes overwhelming.

In no instance was the child encouraged to help make the decision about the operative procedure, nor was an effort known to be made to help the child express his own feelings about what was to happen to him either before or after the operation.

### Discussion

It may be asked how often neurotic behavior is encountered in children. No definite figures are available to indicate what the actual percentage of neurotic children is. However, it is possible to say that, in general, a larger number of children manifest signs and symptoms which foreshadow increasing difficulties later in life than is ordinarily appreciated. Between October 1, 1948, and January 1, 1949, 178 youngsters who had some kind of adjustment difficulty were seen at University hospitals.

Some years ago it was estimated that if 100 average grade-school children were selected at random, irrespective of sex, age, or grade placement, between twelve and sixteen would encounter serious adjustment problems later, either because of severe mental illness, delinquency or inadequate educational preparation.

This is a rather significant percentage. A further tragedy is the estimate that between thirty and thirty-five of the remainder are destined to lead unhappy lives because of unwholesome personality traits. Emotional disturbances in children are so much more common than previously appreciated that the fact no longer can be ignored by any of us.

Little is found in medical literature on the subject of the reactions of children to operations. I found but two references. In 1941, Pearson<sup>2</sup> reported a series of eleven cases in which adjust-

ment problems seemed to be precipitated by operative procedures. Several adults were included in his series. In 1945, Levy<sup>1</sup> reported his findings on a series of 124 cases. Of interest is his finding of a higher incidence of difficulties in children who were operated on when three years of age or under. Of further interest is the large number of tonsillectomies in this age group.

In explanation of the higher incidence of difficulties encountered later in children operated on early in life, Levy<sup>1</sup> mentions the forcible separation of the child from the mother at an age when he is more dependent upon her than at any other stage of his development. Mention is also made that the child reacts more definitely to physical pain than later in life. In addition, children in this age-range live in a more circumscribed world and hence lack social experience, which increases their dependency. The child of this age is also less able to express himself verbally and hence is less able to understand explanations offered him. This combination of circumstances leaves him poorly equipped to handle postoperative anxiety feelings, which may pave the way for later difficulties.

Levy<sup>1</sup> found that the difficulties encountered subsequent to operations could be classified in one of several groups: those children who (1) develop fear reactions such as night terrors, or fear of strange persons, places or the dark; (2) become negativistic or uncooperative; (3) become markedly dependent upon one or both parents, or (4) develop regressive phenomena such as temper tantrums or bed wetting.

These findings reinforce the well-known observations that many behavior problems are precipitated by operations performed under anesthesia. The question arises, "What can be done to prevent or minimize the occurrence of subsequent adjustment difficulties?"

Prophylactically, all unnecessary operation should be avoided in every age group, but more particularly in the younger age range.

There are times, however, when an operation is essential and must be performed.

Should an operation be necessary, several important but simple procedures can be done to minimize possible later difficulties.

Pearson<sup>2</sup> calls our attention to the surgeon's concern in evaluating the patient's ability to withstand surgical shock, a factor of primary importance in some instances. He suggests further

that the surgeon evaluate the child's ability to withstand the psychic shock of an operation. This may seem a formidable task, but a few observations may make it less so. A few very simple things might be kept in mind. First, an attempt to evaluate the general atmosphere or tone of the home from which the child comes is important. Is there any evidence of marital tension? Has too much been expected of the patient? Does he manifest any evidence of the tension because of the demands imposed on him? Is school performance adequate? What has been his reaction to the present illness? Have there been any unusual experiences immediately prior to the present illness? In other words, have many things happened in a short period of time? And last but not least, what feelings do the parents manifest about the patient, his illness and the proposed operation?

If the parents are calm and confident, the child will have a better chance of taking an operation in his stride than if his parents are indecisive or nervous. The direct relationship which exists between the feelings of a child and an adult associated with him in a threatening situation was one of the best lessons learned during the last war, when children were being evacuated from London during the blitz. It was found that even though they were separated from their families, they could manage the threat of an air raid successfully if they were in the presence of a calm and stable individual. But if they were in the presence of an adult who was nervous, fearful or tense, they were not able to manage so successfully.

It is important to determine the preparation of the child for surgery, both remote and immediate. What has been the general attitude toward operative procedures, not only of the immediate family but of aunts, uncles or cousins with whom the child might have been associated? Few of us have any idea what a tremendous influence discussions of this kind have on children. Some effort should be made to evaluate the remote preparation of the child. Of course, the immediate preparation will be our responsibility. If something is to be done, it is our obligation to inform him. The capacity of the child to "take it," when he knows what is to be done, is amazing. Sometimes the child is rebellious and fearful for a while, but if informed, he at least learns he can depend on us.

The child should be encouraged to share his own true feelings with us. His questions should

be answered honestly and simply. Elaborate discussion is not often indicated. It may be necessary to answer questions over and over. And above all, discussions of the child's problems with our confreres in the presence of the child should be conducted with care and discrimination. Each of us, at some time, has been careless in this respect. Let us remember that the child in pain reacts adversely to being "poked" as though he were just a piece of machinery. As fear and anxiety caused by our thoughtlessness may have devastating results, adequate preparation of the child is of prime importance.

Attention to hospital procedures is likewise essential. The child's admission to the hospital should be with someone he knows and in whom he has confidence. If the child is particularly apprehensive, the adult closest to the child might even be encouraged to accompany him to the operating room.

Preoperative medication should be administered in sufficient dosage and at a time to be maximally effective. Ideally, anesthesia should be induced in a room with no unnecessary equipment or operative tools around. If this is impossible, attention to this detail in the operating room may be kept in mind.

Having someone familiar with the child when he awakens will provide the reassurance and comfort needed. Likewise the possibility of developing adverse feelings or unusual fantasies will be minimized.

The performance of more than one operation at a time, such as a tonsillectomy and circumcision should be avoided. If essential, full preparation of the child is required.

Should a child react adversely to an operation, his emotional disturbance should not be treated lightly. To do so may portend trouble later on. It is a complication and should be handled as such. To treat it lightly, to try to talk the patient out of it, or to ignore it, does the patient and his family an injustice.

In summary, physicians' awareness that personality problems do occur in children is increasing and is gradually becoming a subject of importance in medicine. There are a greater number of children who may be said to be either preneurotic or neurotic than has been generally appreciated. Because operations performed on these children may be important in later adjustment problems, surgeons could well include an evaluation of the

child's capacity to withstand the emotional trauma of the operation, along with other preoperative studies. In so doing the possibility of later adjustment difficulties developing may be lessened.

## References

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## Discussion

DR. TAGUE CHISHOLM: I only have some very brief comment. I enjoyed Dr. Jensen's discussion very much, indeed. I would merely like to amplify one or two details from my own office. I think that if children can see what is being done, they are less apprehensive than if they can't. For example, take a laceration of the hand or lower extremity when suturing should be done. The child can watch and be told what to do. He actually participates in this experience, whereas if the laceration is in the face or close to the eyes or back of the scalp, the child can't see and cannot, therefore, share in the management. I feel, therefore, that the patient should be informed that he is going to have a little anesthetic and that he will be asleep, and that when he wakes up the lacerations will be all fixed up. Then there is no unhappy experience, since the child can share in the task and knows what is going on.

In my period of work in pediatric surgery with Dr. Gross, Dr. Ladd and Dr. Wyatt, I have always been impressed by the way they examine children. They don't go into the examining room and start poking the side of a tender abdomen. They go in and ask first what the child's name is. If a favorite toy has been brought along, they play with it and try to demonstrate to the child they are friends and also friends of his toy.

The most difficult part of the examination is looking at the throat and ears. This should not be done first but last. The most important part is feeling the right lower abdomen first and then continuing the examination in proper order. When these examinations have been completed, the discussion, which frequently ensues between the family physician and parents, relates to whether an operation should be done, what the x-rays show, what the white cell count is. This should not be done in front of the child but outside the room. If an operation is going to be done, then don't bluff the child but tell him it is going to be done. Do not deceive him. I have been constantly amazed that children who come for examination are often under tension, but when a decision has been made and an operation is to be performed, the child feels a lot better if he is informed of the operation. He will be a lot sicker if he does not know about it. Many children who are to have an appendectomy or herniotomy will feel much better the day after the operation if they know they are going to have it. I have felt that these men, Drs. Gross, Ladd and Wyatt, should be a pattern for us to follow when we deal with children who are candidates for operation.



## THE VALUE OF THE RORSCHACH TEST

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THE Rorschach test is a projective technique based upon the recording, formulation, and scoring of the patient's responses to ten standard ink blots. These ink blots are on individual cards, and the patient is given each card separately and asked to tell what he sees in the blot. Inasmuch as each blot is an amorphous stimulus and has no meaning in itself, what the patient tells the examiner is a reflection of the patient's own personality. Through a rather complicated system of scoring and formulation, it is possible to obtain by means of a Rorschach test a three-dimensional view of the personality. In other words, the virtue of this type of "projective" technique is that we can learn about various aspects of personality function, factors which would remain hidden to an examiner relying exclusively upon an across the desk interview and upon some of the self-administering tests.

The chief objection to the Rorschach test is the complicated system of recording and scoring. There are several schools of thought about the methods of scoring of a Rorschach test, and there have been several modifications of the technique. However, it is my feeling that when one modifies a technique such as the Rorschach technique, the result is not a true Rorschach record but is somebody's modification of the Rorschach record. Therefore, I believe that in the interests of scientific accuracy, it would be well if we adhered to a standard technique. As in many other fields of scientific work, the establishment of norms is of extreme importance. Therefore, if subjects are exposed to a variety of Rorschach techniques, it is difficult to see how valid norms ever can be established.

The record which is obtained by a Rorschach test is known as a "psychogram." A psychogram is to the psychic structure of a patient what the roentgenogram is to the physical structure of an individual. The psychogram gives a three-dimensional view of the personality; not only do we learn what is going on on the surface of the personality, but we also obtain valuable information as to what is occurring in the deeper layers of the personality structure.

To the practicing clinical psychiatrist the

Rorschach test furnishes considerable valuable assistance. My first acquaintance with the Rorschach test was formed in 1940 when I attended Dr. Beck's course at the Michael Reese Hospital in Chicago. Since that time I have used the test increasingly and have spent many hours discussing it with Dr. Beck. Moreover, I administer, score, and interpret all of the Rorschach tests taken on patients referred to me for psychiatric treatment. Through these experiences I have been able to form some opinions and draw some conclusions about the value of the test.

From the purely clinical standpoint the value of the Rorschach test can be regarded under three categories: diagnostic, therapeutic, and experimental. Much can be said about the diagnostic value of the test, especially when it is administered by the therapist himself and integrated with his other observations. One feels that if the Rorschach test is to be taken by the therapist, it should be done before the psychotherapeutic interviews are started. As I have pointed out previously, it is better to take the test early than to wait two or three weeks after the patient is first seen. For the sake of scientific accuracy the test should be taken before transference to the therapist has occurred. Otherwise the record may be distorted. (From the diagnostic standpoint I consider the behavioral aspects of the Rorschach test very important, and these may be altered if the test is made after transference.) Unconscious hostilities may lead the patient to prolong his reaction time in an effort to punish the examiner, or the fear that what he is doing may not be pleasing to the examiner may color the record with anxiety. Therefore, I take a Rorschach test during the second or third interview. Moreover, if the therapist waits until after he knows the patient before taking the test, it is difficult when formulating and interpreting to be objective and to distinguish between what one learns from the test and what one has learned about the patient from other sources. Therefore, for the sake of keeping the Rorschach test on as strictly an objective basis as possible, this distinction should be maintained.

I will mention just a few of the areas in psychiatric diagnosis in which the Rorschach test has been especially valuable to me. One is in homosexuality. Most of my clinical experience has been with *male* homosexual patients, and I have secured Rorschach records on a considerable number of them. It is becoming increasingly clear that homosexuality is merely a symptom of some underlying personality disorder. Some homosexual persons are hysterics, some are compulsive neurotics, some are psychopathic personalities, some are schizophrenics, some are feeble-minded, some are suffering from organic brain disease, some suffer from anxiety neuroses, and some are constitutional inverts. Not only does the Rorschach test help greatly in determining the treatability of many homosexuals, but it also has provided important therapeutic leads in the psychotherapy of patients accepted for treatment. I am sure that without the Rorschach test several of the patients successfully treated could not have been helped except possibly through *deep* psychoanalysis.

Another group of patients in whom the Rorschach test has been of value is that of the chronic alcoholic or the problem drinker. In recent years many changes have taken place in our basic concepts regarding these patients. We now know that problem drinking is symptomatic of an underlying neurosis or psychosis. Aside from those who are constitutionally psychopathic, problem drinkers usually are superior adults who are conflicted, display much emotional immaturity, are sometimes fixated at an infantile level, and are strongly introverted. They are sensitive, shy, and frequently suffer from marked feelings of inadequacy. The Rorschach test is helpful not only in identifying the source of conflict in these patients but also in helping to bring conflict material to the surface where it can be dealt with. Furthermore, the content of the patient's responses often furnishes important psychotherapeutic leads which, when followed, bring us to aspects of the problem which, unless the patient underwent a deep analysis, would not be recognized.

Another field in which the Rorschach test is of great value is that of forensic psychiatry. Any psychiatrist who is called upon to give medical-legal opinions, either in court or elsewhere, realizes the importance of "objective signs." Dur-

ing the cross-examination of an expert, attorneys pursue the question of what part of the expert's opinion is based upon "subjective symptoms" and how much is based upon "objective findings." To bring a psychogram into court is to furnish the judge and jury with something that is almost as "objective" as a roentgenogram. As I said before, the psychogram can be regarded as an x-ray of the personality structure just as a roentgenogram is an x-ray of the physical structure of an individual. In a recent case, a man who had been committed under the Minnesota Psychopathic Personality law as a sexual psychopath petitioned for restoration of capacity. He had obtained statements from two competent psychiatrists to the effect that, in their opinion, he had made an adequate adjustment. For various reasons the State had reason to believe that this man had fooled the two psychiatrists, and he was referred to me for examination. As part of the psychiatric survey I made a Rorschach analysis. This analysis showed unmistakable signs of a persisting psychopathic state and led to further investigation of the patient's total life situation. The petition for restoration to capacity was denied, and, to the court, the "objective" nature of the psychogram was a most significant piece of evidence.

Closely linked with diagnosis is prognosis. In all fields of medicine prognosis is of great importance. The patients, their family, their friends, their employers, their clergymen, their insurance companies are much more interested in prognosis than they are in the morbid anatomy, psychopathology, bacteriology, and chemistry of the victim's ailment. Frequently a physician's standing in his community can be seriously affected by the correctness or the incorrectness of his prognosis. Nothing could be more embarrassing to a physician than to make a diagnosis of psychoneurosis on a young woman and then have her come in a few weeks later with the nystagmus, diplopia, spastic gait, and the urinary incontinence of multiple sclerosis. It is very disconcerting for the psychiatrist to make a diagnosis of an organ neurosis on a young man and a few weeks later see him in a full-blown paranoid schizophrenia. The ability to make a prognosis in medicine is not something that can be learned from books. It can be acquired only through long years of experience. Therefore, any instrument that will

aid in making an accurate prognosis surely is a valuable agent. If a young man at the time he is suffering from organ neurosis gives a Rorschach test that denotes a preschizophrenic state, the prognosis and the therapeutic approach are changed in all of their fundamentals. If the young woman who has multiple sclerosis, but also not yet reached the point where the disease has caused reflex changes along with other objective findings, is submitted to a Rorschach test and does not show psychoneurosis or hysteria, one will be much more reserved in making his diagnosis of a functional nervous disorder, and there will be frequent neurological examinations.

This brings us to the ubiquitous question of psychosomatic disorders. I have stated elsewhere that psychosomatic medicine is at present in the limelight. In fact, it seems that there is danger of overemphasizing the importance of psychic factors in disease and ascribing too great a portion of the clinical picture to the "functional overlay." Admittedly, every disease has both psychic and physical components. However, the word "psychosomatic" is already in danger of becoming an all too convenient label for *any* illness in which there is a psychic factor and in which the dynamisms are not immediately clear. There is danger that in lieu of a careful and painstaking examination to discover primary organic etiologic factors in a given case, physicians will, after a cursory glance at the problem, label it "psychosomatic" and neglect definitive treatment directed at the organic substratum. This state of affairs has not yet come to pass but in view of the accolade given the psychosomatic concept, one feels that a note of warning should be sounded. Our thinking about psychosomatic disease must be accurate and careful. The term should not be applied indiscriminately to every condition in which a psychic factor is operating, for if that were the case, every illness would belong in the field of psychosomatic medicine. By restricting the use of the term "psychosomatic" to conditions in which demonstrable physiologic alterations or structural changes result, fully or in part, from psychogenic processes, we exclude the "somatopsychic" entities, the disturbances in the mental life of a person which result from somatic disease, e.g., cerebral arteriosclerosis, brain tumor, syphilis, alcoholic intoxication, vitamin deficiency, the deliria, and the like. Some times it is extremely

difficult for the physician to distinguish psychosomatic from somatopsychic disorders, and in many cases the Rorschach test is extremely helpful. Flanders Dunbar<sup>1</sup> says:

"The Rorschach test probes beneath the observable behavior, conversation and mannerisms to deep-lying, often unconscious feelings and motives. The psychosomatic examinations usually give more clearly the specific people and situations in a person's life which occupy his attention, arouse interest, love, anxiety, fear, and the like. The Rorschach test shows the extent to which his interpretations of the external reality are rational and objective, or distorted and erroneous because of past conditioning. The test distinguishes between superficial shock reactions and the more deep-seated characteristic reaction patterns. It gives some indication of whether a symptom or illness represents a wholesale solution of most of life's problems or just a temporary expedient in dealing with a specific problem."

I wish to report briefly two cases in which the Rorschach test was extremely helpful and furnished important diagnostic and therapeutic leads which led to successful treatment in each case. These cases have been reported elsewhere,<sup>2</sup> but I am including them here for purposes of illustration.

*Case 1.*—F. J. was a boy, fifteen years old, who was suffering from severe bronchial asthma. There was no family history of allergy. Both parents and two siblings, of which F. was the second, were living and well, and there were no dead siblings. The father was a successful businessman, never paid much attention to family problems, and had an unsympathetic attitude toward the patient's illness. The mother was an attractive, dynamic but somewhat vain woman who assumed a strongly protective attitude toward F. Many thought that she "babied" him. Because of his asthma it was necessary for F. to be on a very strict diet, and he also lived in a specially constructed air-conditioned room which had been built for him in the family home. The only relief that F. ever obtained during an asthmatic attack was from adrenalin which was given hypodermically always by the mother. It seemed that the mother was a very important personality in the dynamics of F.'s illness.

During the past few years the patient had been sent to a school in a warm dry climate, and at the school he had many adjustment difficulties and much asthma. His mother made numerous trips to the school (1500 miles from home) in order both to "get things straightened out" and also seemingly to satisfy her own emotional need to maintain a supervisory and protective attitude toward F. The father frequently expressed the opinion that the mother was too "soft" with the patient and felt that the boy should be handled along lines that were more hardboiled. The parents often quarreled over the management of F.'s asthma, the mother taking the boy's part.

## RORSCHACH TEST—KAMMAN

F. himself was a pleasant, intelligent, nice-appearing lad who made a good impression. He was slightly effeminate, and his chief interests were art and music. He had some talent as a painter but never showed any interest in the more virile pastimes such as hunting, fishing, or athletics. He did not seem to exhibit any undue fear or concern about his affliction except that it restricted his activities. He took his asthma more or less for granted but was anxious to have something done to relieve it. The question in our minds was how much was the asthma an expression of F.'s need to be dominated and cared for by his mother? Were the attacks a weapon which he was unconsciously using against his father, or a device to get attention from his mother, or the expression of some psychosexual conflict? The psychosomatic history was suggestive but not conclusive.

The Rorschach test showed a sound ego structure but signs that F. was not functioning at the level of his personality. He showed the emotional irritability and instability usually seen in the adolescent and also evidences of mild neurosis. However, there was no deep anxiety, the phantasy life was robust and healthy, and there was no evidences of excessive introversion or extraversion. Associations were broad and free, and the personality was well integrated and liberated. Our conclusion was that the Rorschach test did not follow the psychosomatic formula, and the boy's physician was advised to direct his efforts toward the offending allergens and other medical considerations inherent in the problem. Latest reports indicate that F. is responding very satisfactorily to medical treatment. On the basis of our Rorschach findings and on the basis of F.'s response to medical treatment, psychotherapy in this case would have been a waste of time.

*Case 2.*—Mrs. A. O. was an attractive white woman, thirty-one years of age. She was referred for a psychiatric survey because she was nervous and still complaining of abdominal pain in spite of several major operations performed in an effort to relieve it. All of the physical examinations and laboratory tests carried out by her physician had given normal findings. Without going into the details of Mrs. O.'s history, but in order to give an idea of the surgical traumata that she had endured, the following points will be noted. Mrs. O. had a tonsillectomy in 1930, and this was uneventful. She married in 1933. In 1934 she became pregnant, and she stated that this pregnancy "was a burden." She vomited throughout the entire pregnancy, delivery was accomplished only with the aid of high forceps and Mrs. O. had extensive perineal lacerations. She again became pregnant early in 1936, and all through this pregnancy Mrs. O. had excessive nausea and vomiting, backache, and urinary tract infection. She was anxious and tense and at the seventh month was threatened with a miscarriage. However, the pregnancy went to term and delivery was uneventful. Following the puerperium Mrs. O. developed severe abdominal pain which she was told was "due to her tubes." However, she could not stand an operation, so she went to stay with her parents in Florida. Finally in the fall of 1939 a pelvic

laparotomy was performed, and all of her organs were found to be in good condition with the exception of the appendix which appeared to be chronically inflamed. The appendix was removed without any relief of the patient's abdominal pain. Following the operation, Mrs. O. never felt well. Her husband became disgusted with her, and for the following five years Mrs. O. was a very unhappy woman. She was depressed, nervous, and jumpy. She again became pregnant in February, 1944, and soon she began to have severe abdominal and right flank pain, chills, and fever up to 103° F. In May, 1944, a nephropey was performed, and following this the patient was in bed for several weeks because of burning urination, alternating constipation and diarrhea, vomiting and severe abdominal pain. Another physician then made a diagnosis of gastric ulcer and kept Mrs. O. under hospital management for several weeks, during which time she got worse. It was subsequently found that there was no free hydrochloric acid in her stomach. In July, 1944, she was operated upon for a ruptured ectopic pregnancy, and following this the abdominal pain became worse and persistent. She then became depressed, had daily crying spells, was worse in the morning, lost interest in everything and bought a piece of rope with which she planned to hang herself. She consulted her physician, who, after ruling out serious organic disease, referred her to me for a psychiatric survey. Our question was: is this condition somatopsychic or is it psychosomatic?

It was decided to make a Rorschach analysis. In this case, the psychosomatic formula was much in evidence. It showed signs of severe emotional stress, strenuous inner conflict, neurotic behavior, deep anxiety, and emotional immaturity. However, the ego was sufficiently strong to prevent the patient from seeking escape by way of a psychosis. This is what we usually see in the psychosomatic formula. Furthermore, the associational content in this case revealed the nature and origin of the conflicts, many which centered around the patient's mother. It is interesting to note that during the giving of her psychosomatic history, Mrs. O. insisted that she always had admired her mother, that the mother was an ideal person who liked people, liked to entertain, was affectionate, got along well with her husband and "lived for her home and family." It was only after the Rorschach interpretation had been discussed with Mrs. O., and she was asked to try to think of any disturbing reaction to her mother that she might have had, that the true story came out. Although the mother was a very pleasant and gracious person to her friends and acquaintances, she was in reality a chronic surgical invalid. She had a martyr complex. In addition to this, she was tremendously overweight, a state of affairs which Mrs. O. deplored and passionately wanted to avoid. The mother also had an enormous ventral hernia, she suffered from indigestion, constipation and hemorrhoids, and her health was a constant subject of conversation ever since Mrs. O. could remember. Time and space will not permit a full description of the psychological implications of the mother-daughter relation-

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## CHOLECYSTECTOMY

### A Technique for the Occasional Operator

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It is my purpose in this article not to discuss the extensive subject of gall-bladder surgery and its complicated ramifications, but rather to outline a procedure for simple cholecystectomy. The technique proposed here, I believe, renders the operation safe, relative to accidents involving the vascular and ductal components of the biliary system.

The reader may properly question my justification for such a presentation, considering the numerous articles that have been well prepared and presented by masters in this field. My reasons for writing this paper are as follows:

1. It is written for the occasional operator, with the thought that he has special difficulties to overcome which the practiced surgeon has not.

2. The techniques presented in standard books and periodicals, though written with the intent to instruct in the avoidance of accidents, actually present descriptions and representations of movements which invite catastrophic results, except to those learned in this field.

I have no statistical knowledge of the facts, but I am assured that a large proportion of cholecystectomies are being performed by men who are not finished surgeons in this field. If this is true, those men should have access to literature that has been produced with the purpose of imparting to them in particular the leading points in technical safety. At present, to procure this knowledge and successfully carry the delineation to the operative field, the occasional operator must read a great amount of (to him) superfluous literature in order to glean the proper salient points. The average general practitioner has not the time for that amount of reading. He therefore operates, using a technique that is safe only in experienced hands, and thereby blunders into accidents.

Except by Behrend,<sup>1</sup> the descriptions of anomalies in the operative site are presented in too general a manner, rather than properly pointing out that not only does this area contain numerous anomalies but also that variables exist in the anomalies themselves, producing most deluding situations. The repeated reference to the kinking of the

common duct and excision of a part thereof, the torn cystic artery, the clamping of the hepatic artery, the short hilar duct, and injuries due to attempts to secure hemostasis in a pool of blood, leads one to assume that these are the only dangerous possibilities, and the reader is promptly jarred into confusion by another variable. The literature does not properly impress upon the reader that he should accept confusion as a proper mental state for the performance of safe gall-bladder surgery, and that therefore he should carry out a careful inspection of the field before proceeding at any stage.

In the literature I have invariably met with the same situations with respect to authors unintentionally ensnaring the unwary in difficulties by presentation of procedures he cannot properly perform. I feel that these articles, although intended to assist the occasional operator, impart information which leads him into just those dangerous situations which the articles had intended to help him avoid:

Lewis<sup>9</sup> advises and illustrates puncturing of tissues, undermining the cystic duct, and transection near the common duct. He states that the duct and artery may be ligated together, and advises isolation of the cystic artery in the soft tissues.

Bickham<sup>8</sup> illustrates passing an aneurysm needle under the cystic artery and duct, and ligating them together.

Spivack<sup>12</sup> illustrates and discusses the passing of an aneurysm needle around the cystic duct close to the common duct, and the use of a clamp at a set distance from the common duct. He admits to searching for the artery in the tissues. Spivack also illustrates grasping a fold of peritoneum containing the cystic artery. He illustrates further, digging in dangerous tissue in order to locate and ligate the cystic artery. He illustrates the duct and artery being clamped a good distance from the gall bladder.

In Christopher's book<sup>5</sup> there is illustrated the clamping of the cystic duct with its peritoneal covering, and there is demonstrated the passing of a needle and suture into the tissues about the cystic duct. Both of these procedures are admittedly vicious.

Maingot<sup>10</sup> states that the cystic artery should be identified before ligation. He further states that the dissection which is concerned with the exposure is the very method by which the artery may be torn. He also seeks for the artery in tissues dangerous to invade. He

pictures the clamping of the artery near the hepatic duct, then warns of its dangers. He advises encircling the cystic duct with a needle, and also uses clamps at a given distance from the common duct—a predetermined distance.

Behrend,<sup>1</sup> after an excellent consideration of anomalies, illustrates knife dissection near the common duct. He further shows the extreme spreading of tissues, the clamping of the cystic duct at its mid-point, followed by seeking for the cystic artery in the deep tissues.

Vaughn,<sup>13</sup> after a discussion of anomalies, pictures the cystic duct clamped far from the gall bladder. Further, he describes seeking for the cystic artery in the areolar tissue and admonishes against carelessness because of danger to the hepatic artery.

Bettmen<sup>2</sup> states that the first step should be the exposure of the cystic artery, which he illustrates being clamped near the hepatic duct. He states that this artery is easily found and is rarely anomalous.

Cattell<sup>4</sup> states, "Since stricture as of operative injury is preventable, it is a real tragedy." He mentions tearing of the cystic artery during tension on the gall bladder. He pictures clamping the common duct angulation, then illustrates clamping "properly" close to the common duct.

Cutler and Zollinger<sup>6</sup> describe and illustrate the cystic duct being undermined at its mid-point, and there transected. They also seek for the cystic artery in the depths of the fibro-nerve tissue, and ligate at that point.

Graham<sup>7</sup> illustrates the cystic artery ligated close to the hepatic duct.

Lahey<sup>8</sup> describes and illustrates seeking for the cystic artery in the periductal tissues. He illustrates undermining the cystic artery away from the gall bladder. He further describes and illustrates undermining the cystic duct at its mid-point, followed by transection.

It is my opinion that if the above-reviewed techniques are followed by the occasional operator, he will frequently find himself within the realm of a trying siege, discovering dangerous situations only after harm has been done.

None of these articles suggests that one should work as far from danger as possible when destroying tissue, avoiding treacherous areas altogether. These problems can be overcome only by preparation for each stage of advance.

The operation should be entered upon in the proper state of mind—that is, to accept it as a beguiling procedure with pitfalls at every turn, nothing to be accepted as it seems to be without thorough inspection. In an area the size of a dollar, nature has formed for the operator an amazing number of anomalies, making each case a new challenge to the resourcefulness of the surgeon, and demanding of him that he clamp and cut any structure as far from danger as possible, and that there be no sharp dissection or crushing of

tissues unless absolute proof of safety is presented.

I consider it quite important that the occasional operator be quick to admit his limitations and resort to a cholecystostomy if the presenting difficulties warrant it. It is paradoxical that Dr. Lahey<sup>8</sup> with his wealth of experience and knowledge would only drain in a case presenting a short hilar-placed duct, while those of vastly less experience will bravely chop through to a cholecystectomy no matter what presents—no matter what the gamble in ultimate harm to the patient.

I wish to present a procedure which I have been employing for many years, with which I have been able to cope successfully with a number of anomalies, and which I feel will protect the occasional operator no matter what anomalies are present.

### Technique

The discussion of the abdominal incision is not within the scope of this paper. Suffice it to say that excellent exposure and good lighting are absolutely necessary, with no place whatsoever for trick surgery through small incisions. One should bear in mind continually that the real finesse of the operation is concentrated in a small area about the cystic duct. The purpose of the operation is to enter this area, carry out the proper procedure, and retreat with the assurance that one will do no harm. If that confidence is lacking in a particular case, drainage of the gall bladder is the alternative, rather than aimless sparring with tissues.

The first question to be settled is whether or not the appearance of the gall bladder suggests the possibility of there emptying into it the right hepatic or common hepatic duct.

If the gall bladder is excessively distended, it is emptied of stones and fluid.

The peritoneum of the antero-liver aspect of the gall bladder is incised, the incision progressing from a point about two-thirds the distance from the fundus, near the liver, in a curved manner to the cystic duct, and thence to the common duct. At this point the cystic and common ducts are exposed only minimally in order to establish a rough idea as to their location. No structures except the peritoneum are molested (Fig. 1).

The peritoneum is gently loosened from the gall bladder and peeled toward and only to the area bordered by the liver, the liver aspect of the

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gall bladder, the cystic duct, and the right hepatic duct. I will refer to this space of areolo-fibro-nerve tissue as the "danger area."

As each vessel is demonstrated on the gall bladder (please note—on the gall bladder), it is

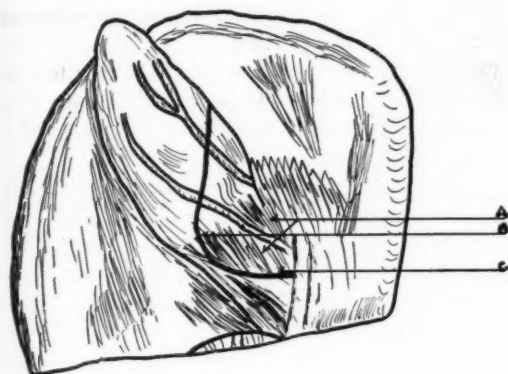


Fig. 1. (A) The "danger area" to be avoided. (B) Line of incision on the gall bladder. (C) The incision continued over the area of the cystic duct.

ligated, transected, and gently peeled off the organ with gauze. It may be noted at this point that after transection of any vessel there is no retraction, and, therefore, an accident resulting in hemorrhage is easily controlled. After this liver aspect of the gall bladder has been cleared of vessels to the distal portion of the cystic duct, there will be apparent one or two ties at the peritoneal edge, the "danger area" not having been encroached upon. Except for an occasional posterior branch or one coursing along the duodenal aspect of the cystic duct, the cystic artery has now been ligated and offers no further difficulties. This area then remains completely cleared to the junction of the cystic duct with the gall bladder.

Employing gauze dissection, the anterior aspect of the cystic duct and a sufficient length of common and hepatic duct are demonstrated. No sharp dissection is done. Up to this point in the operation no harm could have been done to any structure.

Using a tooth-free thumb-forceps, the cystic duct is gently elevated and with gauze dissection the posterior aspect of the duct is freed from its connective tissue base, from the gall bladder to the first point of serious resistance, otherwise to the common duct. Any suspicious tissue or vessels are left untouched. There then remains but a thin layer of fibro-nerve tissue connecting

the duct, in its full length, to the "danger area," which has not, up to this point, been molested (Fig. 2). The result is a cleared cystic duct, being bound only on the liver aspect. A puncture is not made through this leaf of tissue. Such a

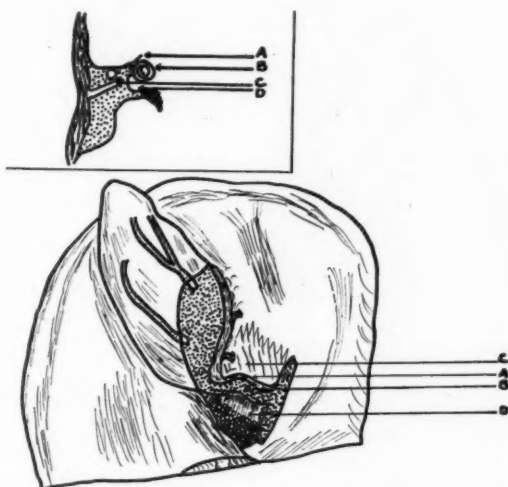


Fig. 2. (A) Peritoneum freed from cystic duct only. (B) Cystic duct freed except for restraining leaf of tissue attached to its liver aspect. (C) "Danger area" covered with peritoneum. (D) Tissues freed posterior to cystic duct.

procedure is, I believe, a source of danger and accident. Though it appears thin and harmless this narrow area may contain important vascular and ductal structures.

The cystic duct is doubly clamped *at its junction with the gall bladder*. The points of the clamps face the liver, and do not extend beyond the duct. Transection is then carried nine-tenths through, and no farther. Gentle tension results in a tearing process completing the transection. Up to this stage there has still been no possibility of injuring vital structures, no matter what anomalies are present.

Most gently, the duct is freed from its last restraining tissues, freeing it from the "danger area." If during this procedure an obstruction is encountered at any point which does not separate with the gentlest pressure, one can feel justified in ligating at this point, unless thorough inspection promises safety in continuing. If such be the case, the duct is freed to the common duct. In choosing the point at which separation shall cease, one should consider only the present threat to the patient, rather than the remote possibility of the reformation of a small false gall bladder. The

cystic duct having been fully freed, it may be ligated at any point desired in complete safety (Fig. 3).

Following the above, the first steps in the freeing of the gall bladder are done with gauze dis-

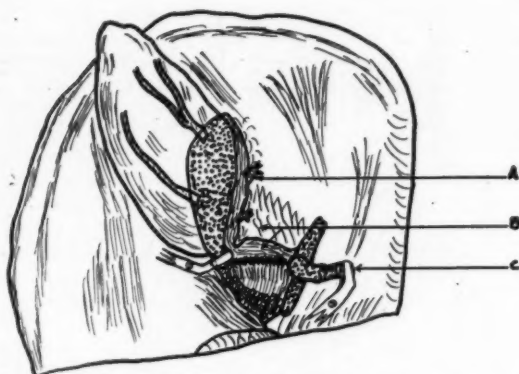


Fig. 3. (A) Vessels ligated on the gall bladder and wiped off. (B) "Danger area." (C) Completely freed cystic duct ready for ligation at point desired, without necessity for tension or for preliminary clamping.

section, seeking for anomalous vessels and ducts. At this point I wish to warn the reader that if any large vessel is encountered it should not be hurriedly clamped in the belief that it represents a posterior branch of the cystic artery. Rather, it should be carefully preserved until the dissection reaches the fundus or until it is proved that the vessel leaves the liver bed and enters the gall-bladder wall. On two occasions I have seen an artery course nearly to the fundus before entering the liver. It is also important to bear in mind that transection of these vessels results in forceful retraction. It is, therefore, best to slip a tie under the vessel, and transect some distance fundalward.

At this point I wish to offer a suggestion, which, however, I do not consider a substitute for compression of the hepatoduodenal ligament. In case of hemorrhage an excellent hemostat is formed by the use of the thumb and first finger. No harm is done, and it is surprisingly easy to carry a suture around them.

### Discussion

I feel the reader will agree, in following the steps of the procedure, that at any time abnormalities are present they will become clearly apparent prior to accidental injury, occasioned by doubt in the surgeon's mind as to what tissues he is

transecting. He is at all times working as far from danger as possible, and approaching it by safe methods. He never enters the "danger area."

This work has been presented with the principle in mind that there is no measured, correct distance for ligation of the cystic duct. Rather it should be ligated at a point which guarantees safety to the patient.

My desire has been to impress the reader with the fact that gall-bladder surgery is fraught with catastrophic possibilities, and that each step must be executed circumspectly.

Lastly I believe that the will to complete a cholecystectomy should be subordinated to the wish to carry the patient safely through the operation. Therefore, if any particular case presents not easily comprehensible situations, cholecystostomy is the proper procedure.

### Conclusions

The writer feels that the efforts of surgeons in outlining techniques for the avoidance of accidents in gall-bladder surgery have been incomplete and even misleading to the occasional operator.

A procedure has been presented which has served the writer well for several years, and which he believes will greatly assist the occasional operator in this type of surgery.

The paper has been limited to a discussion of cases presenting the need for only a simple cholecystectomy.

There has been no mention of a cholecystectomy commencing at the fundus. In uncomplicated cases this is unnecessary. In difficult cases it admits of at least as much and probably more danger than the procedure outlined.

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# History of Medicine In Minnesota

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## HISTORY OF MEDICINE IN NICOLLET COUNTY

(Continued from the May issue.)

**Jones, William Alexander**, was born in St. Peter in 1859 and was educated in the St. Peter public schools. He entered the medical department of the University of the City of New York, being graduated in 1881. He served as intern at the St. Peter hospital from April, 1881, until December of the following year. He was elected secretary of the Minnesota Valley Medical Association in April, 1882. After taking postgraduate work in New York and abroad, he located in Minneapolis and specialized in mental and nervous diseases. In 1888 he was appointed lecturer on nervous diseases at the University. He was, for many years, the editor of the *Journal Lancet* and, for a long period, served on the State Board of Health. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

**Justice, O. M.**, was assistant physician at the St. Peter hospital, commencing work in July, 1897, and remaining until May, 1898, when he began to practice in Waterville, Le Sueur County. In June, 1899, he located in St. Peter, succeeding Dr. Ranson.

**Kennedy, R.**, came to Nicollet County in 1849.

**Kilborne, Arthur F.**, was born in Keokuk, Iowa, in 1858. He was graduated from the high school of that city and entered the medical department of the University of the City of New York, being graduated in 1883. After graduation he spent a year or more in Word's Island Hospital for the Insane, in New York. In December, 1884, he began work as assistant physician at the St. Peter Hospital. In June, 1889, he was appointed superintendent of the Rochester Hospital for the Insane, where he remained. He was a member of the Olmsted County Medical Society, the state and national association and the American Medico-Psychological Society.

**Kranz, C.**, practiced in Nicollet, Nicollet county, in the eighties and nineties. He held an exemption certificate.

**La Dow, J.**, came to St. Peter in 1865. In April of that year he was appointed assistant surgeon in Brackett's Battalion at Fort Rice, but returned to St. Peter a few months later. In October, 1867, he accidentally shot and killed himself. He was born in New York and had practiced in Sandusky, Ohio, and in Wisconsin. He was fifty-three years old at the time of his death.

**Le Boutellier, C. W.**, was in St. Peter in 1862 as surgeon of the Ninth Regiment, Minnesota Volunteer Infantry.

**Lehnert, Henry C.**, located in St. Peter in September, 1865. He was a homeopath and came with recommendations from Chicago. He stayed in St.

## HISTORY OF MEDICINE IN MINNESOTA

Peter a short time, returned to Illinois and was preparing to move back to St. Peter when he died at Mt. Vernon, Illinois.

**Lincoln, W. L.**, of Wabasha, took charge of the St. Peter Hospital in the summer of 1879, during the absence of Dr. Bartlett.

**Mallison, Elizabeth C.**, was the first woman assistant physician at the State Hospital for the Insane at St. Peter. Her term there was from March, 1890, until May, 1893, when she left to accept the position of first assistant in the women's department of the Western Pennsylvania Hospital for the Insane, at Dixmount, at a salary of \$1,200 per year. Dr. Mallison was born in New York, entered the Women's Medical College of Pennsylvania and was graduated when she was about twenty-two. She went to San Diego, California, and built up a good general practice before coming to St. Peter.

**Mayo, W. W.**, (for Nicollet county). In the spring of 1856 he moved his family to Lake Prairie township, near St. Peter, in Nicollet county, where they lived on a large farm, although not as farmers, for three years. He practiced medicine and supplemented with other occupations. In 1859 he moved his family to Le Sueur and, in 1863, from Le Sueur to Rochester where they settled permanently.

**Merrill, Rose Marie**, of Mankato, began service as an assistant physician at the St. Peter Hospital in June, 1900, and remained until June, 1901.

**Merritt, George F.**, was born in Dansville, New York, in 1846, and was educated in the public schools of Rochester, New York. In 1856 he moved, with his parents, to Iowa, attending public school and college in Burlington until 1868. In 1872 he was graduated from Rush Medical College and, in May of the same year, commenced practice in St. Peter where he remained until his death in October, 1921. The doctor was a member of the St. Peter school board and coroner of Nicollet County for many years. He also held the position of United States pension surgeon for several terms. He was one of the founders of the Minnesota Valley Medical Association and, excluding the years 1894-95 and 1895-96, was treasurer during its entire existence. After the Minnesota Valley and the Southern Minnesota Medical Associations combined, he continued in the office of treasurer. He was a member of the Nicollet County Medical Society, the Nicollet-Le Sueur Medical Society, the state and national associations. He also belonged to various fraternal orders—the Masons, the AOUW and the Legion of Honor.

**Mueller, Alfred**, (see Washington and Brown County biographies).

**McCohlom, C. A.**, practiced in St. Peter in 1871.

**McCullough, William B.**, came from Indiana to St. Peter in the spring of 1860 and remained several years before moving to California where he died in the summer of 1868.

**McIntyre, George Wesley**, a native of Cleveland, Ohio, was born in 1853. He attended school in Wisconsin and Ohio and was graduated from the Minnesota College Hospital in 1883. He also studied at the University of New York and the New York Polyclinic. In October, 1883, he began work as an assistant physician at the St. Peter State Hospital, continuing until May, 1884. He then began to

## HISTORY OF MEDICINE IN MINNESOTA

practice in St. Peter. He was appointed to the local board of health and, for many years, he served as health officer. In August, 1889, he began his second term as assistant physician at the State Hospital and remained there until May, 1893, when he returned to general practice. In 1898 he was appointed a member of the State Lunacy Commission and served one term. Dr. McIntyre continued in active practice until his death, July 11, 1920. He was a member of the county medical society, the Minnesota Valley Association, the state and national associations.

**Nelson, J. R.**, came to St. Peter in 1871. His card, appearing in the *St. Peter Tribune* January 25, 1871, announced his office to be with Dr. J. W. Daniels. It is unlikely that he stayed for any great length of time. He was a graduate of the New York College of Physicians and Surgeons and had practiced in New York.

**Nicholson, David A.**, was born July 19, 1871, on Prince Edward Island, Canada. He entered the Department of Medicine of the University of Minnesota, being graduated in 1897, and served as intern for one year in the Asbury hospital, Minneapolis. He practiced medicine in Olivia, Minnesota, in 1898, and the following year moved to St. Peter. From 1899 until 1904 he served as assistant physician in the St. Peter Hospital. He then moved to Seattle, Washington, where he specialized in mental and nervous diseases. He is a member of the Washington State Medical Association and the American Medical Association.

**Page, Frank W.**, was a graduate of Burlington Medical College in Vermont and had served in hospitals in New York before coming to St. Peter in 1866.

**Pehrsoon, John**, came to St. Peter in April, 1875, and remained until October, 1877, when he moved to Minneapolis. His office, while he was in St. Peter, was with Dr. A. W. Daniels. In 1883 he was made lecturer on obstetrics at a new medical college in Minneapolis, the College of Physicians and Surgeons in Minneapolis. Later he moved to Duluth.

**Pratt, Calvin**, came to St. Peter in 1865 and probably remained about two years. In January, 1868, he was physician on a steamer running between Boston and Liverpool. He was a graduate of Harvard.

**Putnam, E. C.**, was born in Mt. Sterling, Illinois, June 18, 1853. He received his early education in Illinois. He was graduated from the Louisville Medical College in 1875 and began to practice medicine in Cooperstown, Illinois. He remained there for one year. Later he practiced for two years in Kansas. In August, 1881, he located in Nicollet, Nicollet County, where he remained until March, 1883, when he moved to Decatur, Illinois. He was probably the first regular physician in Nicollet.

**Putnam, Marion**, was in Nicollet in 1878 and 1879. It is not known whether he was a regular physician.

**Ranson, George**, was born in Dodge Center, Minnesota, his father being one of the oldest practitioners in that section of the country. In February, 1898, Dr. Ranson came to St. Peter and took over the office of Dr. D. B. Collins who had just died. He was a member of the Minnesota State Medical Association. He continued to practice in St. Peter until his sudden death in 1899.

## HISTORY OF MEDICINE IN MINNESOTA

**Ranson, Mary E.**, was born in Dodge Center, Minnesota. Her term as assistant physician at the St. Peter Hospital began in 1898 and she continued her duties there until June, 1900. In September of the same year she married Dr. A. F. Strickler and moved to New Ulm.

**Ray, C. Wilbur**, was born in 1856 and was graduated from the Bennett Medical College in 1885. He practiced in various parts of Minnesota and, in 1893, was in Owatonna, where he remained several years. In 1896 he located in Nicollet, Nicollet County, succeeding Dr. Joseph Wicke, whose stock of drugs and medicines he purchased from the doctor's widow. He was, for a time in 1896, the editor of the *Nicollet Leader*. He spent the summer of 1899 visiting Boston hospitals. The following year he moved to California. He died in Los Angeles in 1913. He was a member of the Minnesota Eclectic Medical Association and served as its secretary for many years.

**Robb, C.**, of Pittsburgh, Pennsylvania, came to St. Peter in August, 1856, and bought a block of business lots. At that time he intended to remain in St. Peter, but it is doubtful that he stayed or practiced there.

**Shantz, Samuel E.**, was the first superintendent of the St. Peter Hospital for the Insane. He was a native of Ithaca, New York, and served as assistant physician at the Hospital for the Insane in Utica, in the same state, for six years. In October, 1866, he came to St. Peter to assume control of the hospital, but served only two years, for he died of typhoid fever in August, 1868. A memorial window in the Church of the Holy Communion honors his brief work in St. Peter.

**Scott, M. W.**, practiced in St. Peter about 1870. Later he moved to Windom, Minnesota, and, in 1878, was to be found in Henderson. He was elected to membership in the Minnesota State Medical Association in 1878.

**Skinner, Chauncy Morgan**, was born in Hartland, Wisconsin. He was graduated from Rush Medical College and, after receiving his degree, spent one year as an intern in the Cook County Hospital in Illinois. He then practiced medicine in Minneapolis where he owned a drug store. In 1899 he located in St. Peter where he built up a large practice and was elected Nicollet County coroner for several terms. He was an enterprising practitioner and had a private telephone service with Kasota, answering all calls from that town. In the fall of 1891 he rented four rooms in the Amundsen building and fitted them up as a private hospital in which the patients could employ any physician they chose. In 1894 he attended medical lectures in Chicago. In November, 1896, he moved to the town of Nicollet, as a result of the death of Dr. J. Wicke and remained for about one month. After that he returned to his native town of Hartland where he practiced until his death several years later. The doctor was a prominent Mason, a great rifle shot, and inspector of small arms in the Minnesota National Guard. He was a member of the Nicollet County Medical Society and the Minnesota State Medical Association.

**Strathern, Fred P.**, was born in Rich Valley, Minnesota, in 1869. He attended school in Hastings and, in 1890, he entered the state university. He received his bachelor's degree in 1894 and a degree of master of science the following year. He received a degree in medicine in 1899 and, in September of that year, began practice in St. Peter, occupying Dr. George Ranson's old office. He has since



## HISTORY OF MEDICINE IN MINNESOTA

taken graduate work in New York and Chicago and has served on the public library board of St. Peter. He is a member of the Masonic lodge. In 1900 he was admitted to the Minnesota Valley Medical Association, which later merged with the Southern Minnesota Medical Association. He is also a member of the Nicollet-Le Sueur County Medical Society, the state and national associations.

**Strickler, Abraham F.**, was an assistant physician at the St. Peter Hospital for the Insane, his appointment being from June, 1898, until May, 1899. In September, 1899, he married Dr. Mary E. Ranson, also an assistant at the hospital, and moved to New Ulm. A brother, Dr. O. C. Strickler, practiced in New Ulm.

**Sweet, A. A.**, came to St. Peter from Kasota, Le Sueur County, in March, 1891, and opened a drug store.

**Tomlinson, Harry Ashton**, was born July 3, 1855, in Philadelphia, Pennsylvania. He received his education in the common schools and was a bookkeeper before taking up the study of medicine. In 1880 he was graduated from the medical department of the University of Pennsylvania and, for the following eight years, he practiced in Muncie, Pennsylvania. He was assistant superintendent at the Friends Asylum at Frankfort, Pennsylvania, for three years and, in 1891, began his duties as first assistant at the St. Peter Asylum for the Insane. When Dr. C. K. Bartlett resigned as superintendent in August, 1892, he was appointed to the position, but did not begin work in this capacity until December or January. Largely through his efforts, the asylum was improved and enlarged. After twenty-one years of active service, he resigned to accept the position of superintendent of the State Hospital for Inebriates at Willmar, Minnesota. His poor health and the strain of building up a new institution led to his death May 30, 1913. Doctor Tomlinson was a Knight Templar and a member of the Loyal Legion. He served on the state board of charities and corrections, served as president of the Medical Alumni Association of Pennsylvania and was a member of the American Neurological Association. He was a member of his county medical society, the Minnesota Valley and the Southern Medical Associations and the state and national organizations.

**Tuomy, Clark F.**, was born in Ann Arbor, Michigan, where he attended the public schools and the medical department of the University of Michigan, being graduated in 1896. He was appointed assistant physician at the St. Peter Hospital for the Insane and served there from September, 1898, until September, 1906. He moved to Genesee, Idaho, and operated a successful local hospital there. He took his postgraduate work at the Lying-In Hospital of New York City and, later, at the University of Vienna. He was local physician for the Northern Pacific railroad.

**Valin, Honore, D.**, was born in Canada in 1858. He attended the public schools and Monnoir College, Marsieville, Quebec, and then entered the medical department of the University of Vermont, being graduated in 1879. He began practice in Chicago in 1880 and remained there for eight years. He was a member of the Academy of Science, in Chicago, and assisted with the *Chicago Medical Journal and Examiner*. He also published the *American Journal of Miology* and was demonstrator of physiology at the College of Physicians and Surgeons. From 1890 to 1894 he practiced in Kankakee, Illinois, and then became the pathologist

## HISTORY OF MEDICINE IN MINNESOTA

at the St. Peter Asylum for the Insane where, with the exception of one year spent in Mankato, he remained until 1915. At this time he went to Fort Wayne, Indiana. He was a member of the Minnesota Valley Medical Association.

**Wicke, Joseph**, was born in Lindeweazie, Silesia, Germany, in 1852. He attended the College of Meisse and followed several occupations before deciding to study medicine. He came to the United States and, in 1885, was graduated from the Minnesota College Hospital. The following year he began practice in Amboy, Blue Earth County. In August, 1887, he moved to Nicollet, Nicollet County. Apparently he had lived in the county, probably in St. Peter, before this date. In Nicollet he enjoyed a good practice and also ran a drug store. He was president of the village council for the terms 1893-94 and 1895-96, but died October 31, 1895, before the last term was completed. He was a member of the Nicollet County Medical Society and the Minnesota Medical Association.

**Winter, Elizabeth**, was a physician at the St. Peter Hospital for the Insane in 1892 or 1893. In 1893 she went to India where she took charge of a hospital in Bombay. On her return, in December, 1894, she was appointed resident physician at the Friends' Asylum for the Insane at Frankfurt, Pennsylvania.

(To be continued in July issue.)

## COMPULSORY VERSUS VOLUNTARY HEALTH INSURANCE

### What Are the Benefits?

#### Compulsory

No benefits whatsoever are *guaranteed* under the Compulsory Plan. But every rosy *promise* in the political book is made!

The sponsors wrap up their promises in this typically political language: "when funds are available"—"insofar as possible"—"when facilities permit."

*Services* could be restricted at the whim of Administrators—but there is *no tax limit!*

The only absolute guarantee is the guarantee of a *new payroll tax—the amount unpredictable!*

#### Voluntary

Under Voluntary Health Insurance, 55 million Americans have specific guarantees in writing, both as to costs and benefits.

They may have freedom of choice of doctor, hospital—and type of service.

They have dependable protection from financial shock in time of illness or accident—*under the finest health care system in the world today!*

Proof of satisfaction is in the mounting millions of enrollments throughout the Nation.

### Is It Good for America?

#### Compulsory

In every great nation which has tried government-controlled medicine—Germany, Russia, France, England—the result has been:

Second-rate medical care

Decline of medical education and research

Invasion of the patient's personal privacy

Political control substituted for medical direction

A new hierarchy of Federal administrators

Constantly mounting tax burdens

Extension of controls over other professions

#### Voluntary

Unfettered, American medicine leads the entire world.

It has made Americans the healthiest, strongest, best cared for people on earth.

It furnishes daily proof that there is no need to import the medical systems of a sick, harassed Europe to a strong healthy America.

The scientific advances of American medicine in conquering disease and extending life are recognized as foremost by the entire world.

# President's Letter

## WHAT CHANGES MINDS?

There is no set formula for making up or changing people's minds. Forbents of thinking differ from individual to individual almost as much as fingerprints and blood types.

Take your friend who is vice president of a manufacturing company. It will require cold logic and dollars-and-cents facts to change the direction of his thinking. His wife, on the other hand, may react to an emotional appeal, just as intellectually phrased, but dealing with the less tangible qualities of human feeling. The superintendent of nurses at the local hospital may yield before a combined economic and humanitarian presentation.

Our present and vital job is to find the correct approach to all the persons with whom we come in contact. It is not, in essence, a difficult job, for we are able to call to our assistance the lessons of history; we can show the subtraction of tax dollars from income and we can prove that government control subtracts from the medical care level of a nation; we can unfold the dramatic story of American medical progress, a story rich in human interest and the intangibles of devotion, trust and loyalty.

Or we can ask the simple questions: Do you value your health and the health of your neighbors and fellow citizens? Do you think it's good business to pay more for medical care and get less?

It is imperative that we avail ourselves of the material being prepared by Whitaker & Baxter, the public relations counsel hired by the American Medical Association, so that we are familiar with the facts and their implications in every phase of thought and endeavor.

Then we must faithfully transmit this information, in the form and manner most effective for each individual. It is only in this way—by the active and sincere participation of every member—that compulsory health insurance will be rejected by the American people.

Do not ask what the American Medical Association or the Minnesota State Medical Association or your county society is doing about socialized medicine. Ask yourself what you are doing about it.



President, Minnesota State Medical Association

# Editorial

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## VITAMIN B12

THE successful isolation of B12 from liver by the research laboratory of Merck and Company and almost simultaneously by the Glaxo Laboratories in England constitutes a milestone in the story of anemia. B12 is apparently the active principle in liver and liver extracts and is so powerful that five to ten thousandths of a milligram will produce a therapeutic response in pernicious anemia.

The discovery that liver contained some active substance which caused remissions in pernicious anemia was followed by the extraction of a water-soluble substance by Cohn in 1927, known as "Fraction G." The crude extract first contained only one or two units per cubic centimeter, but more refined extracts containing ten to fifteen units per cubic centimeter were later prepared.

The preparation of folic acid and the discovery that it too produced remissions in pernicious anemia was a further step in the study of the therapy of the anemias. Its failure in the prevention or successful treatment of neurological changes accompanying pernicious anemia did not permit its substitution for liver therapeutically. Folic acid, however, has been of special value in the treatment of other anemias such as that accompanying sprue, atypical macrocytic anemia, the pernicious anemia of pregnancy, and megaloblastic anemia of infancy. In these conditions response to folic acid is often better than to liver.

B12, being the active factor in liver and liver extracts, can be used in place of liver extracts in the treatment of pernicious anemia and has the same preventive and curative qualities in the treatment of neurological complications. It is non-toxic, and intramuscular and subcutaneous injections are not accompanied by pain, both routes of administration being equally effective. It should be noted, however, that so far there has been no experience as to possible deleterious effects following the administration of large doses over a long period of time.

The dosage of B12 is 10 to 15 micrograms

hypodermically or intramuscularly, once or twice a week until remission occurs. Five micrograms once a week seems sufficient for maintenance. Inasmuch as patients' needs vary, larger doses (25 micrograms) once or twice a week are occasionally needed.

Extracted originally from liver, B12 is now obtained commercially as a by-product from *Streptomyces griseus* and has been found to contain cobalt in minute amounts. The significance of the cobalt content affords a field for further investigation. Therapeutic iron is said to contain traces of cobalt. On the other hand, the giving of cobalt to pernicious anemia patients has not proven effective.

The main significance of the availability of B12 for the practitioner lies in the fact that he now has a substitute for liver extracts for use in patients sensitive to these extracts. Until the cost of B12 is reduced and it is available in larger quantity, liver extracts will continue to be the remedy of choice in the treatment of pernicious anemia. Whether B12 eventually replaces liver remains to be seen.

It is just as illogical and unnecessary to administer B12 for secondary types of anemia as to prescribe liver. The unwarranted use of liver extracts for secondary types of anemia and a multitude of other conditions does not speak well for the knowledge or intellectual honesty of the profession and does not consider the patient's pocket-book. In secondary types of anemia, iron is indicated.

## HEALTH BY COMPULSION

LIFE MAGAZINE in its May 2 issue has devoted its editorial page to a trenchant analysis of what it calls the Truman-Ewing "Health by Compulsion Program." With its ever-increasing circulation here and abroad, this weekly magazine, not designed for a platform for any particular economic or social group, is an unusual developer of public opinion. The weighing of the



arguments for and against central national health insurance is well and fairly stated, albeit the AMA received no credit for delay in meeting the issue of voluntary prepaid sickness and health insurance (Blue Shield).

There is, however, on the page opposite the editorial proper, one discordant item that calls for decisive rebuttal by practicing physicians, because no other group is as competent to give testimony concerning what is meant by the need for more doctors and for their more widespread dispersal in undeveloped and thinly populated districts. Says *Life*, "All hands agree that the United States needs a lot more doctors, and at best it cannot get them nearly fast enough." Here is a place to pause and weigh in the balance the older economists' distinction between "needs and wants." There is a fundamental difference, despite the fact that, as living scales advance, *wants* do tend to become *needs*. Naturally, most normal women would *want* a nice mink coat and most normal men would naturally *want* a Cadillac car, if in either instance these supposedly advantageous items for better living could be had for the asking. Indeed there are a few who might well *want* the moon! But, what authority is there, outside of prisons, reformatories or draft boards, that is able to make decisive rulings regarding what individuals may expect in terms of their *wants*? Hence the fairness in *Life's* reference to "Ewing's jail" as applied to doctors in their work; but the joker lies in the obvious fact that if the doctor is jailed, his patients will be in there with him—all tied up together in bureaucratic Utopia, where the idea of costs never obtrudes, as Oscar Ewing so naively demurs in all his public interviews.

Nevertheless, the experience in Britain amply testifies that the extravagant *wants* of people, pepped up by the grandiose propaganda that most diseases may be prevented and (in early stages) cured, give the political reformer an Aladdin's lamp with a perpetual battery: health and long life without cost or personal effort—just ask for it. Vote right, and you can have health, security and plenty of time to cultivate your most compulsive and favored sins.

To purvey this quite mechanistic type of healing acquired by universal healing could well require doctors at every crossroads, comparable to the slot-machines in Nevada—a respected and

legal technique for painless tax gathering in that fair state. It is this huge withdrawal of the resources and earnings of our people that threatens our national economy even more than the basic integrity of our profession. Our medical schools should be doubly and triply cautious. If this great gamble in health is ventured, watch for a stealthy advance, with grants and aids to our schools contingent upon enlarging and graduating more students. Granted that some increase is needed, just give us a decade of peace and the professional ranks in all lines will be overfilled. But, if the reformers get their way with medicine on "a slot-machine basis," where the legions of neurotic, maladjusted complainers come and drop into the slot their individual *wants*, then, obviously, quantity and not quality of medical service will be the goal.

We are committed on a national scale to the techniques and purposes of mass production; under its aegis we have become engulfed with world power. If mass action in science was able to bring atom-smashing to successful performance in waging war, why, say the unwary, should not similar breathtaking efforts in science eliminate cancer as a health hazard and even limit the encroachments of age? It is in something of this spirit of an attempt at understanding that we should meet our critics, acknowledging that medicine is not an isolated discipline, that in the vital matter of its popularity and the percentage of the population seeking its benefits, it remains less of a science than an art. To point further to the critical situation facing all groups in the field of health, the motion picture industry presently offers an interesting exhibit. It was exceedingly popular up to less than a decade ago; it seemed to have gone not only into the field of science and education but even art and morals. What has happened to it now? Long before any threatened competition had advanced materially, mass production and pure volume for volume's sake have robbed the industry of much of its great possibilities for developing a healthy population with well-adjusted minds. Applying this last thought to the "Health By Compulsion Program," taking cognizance of a large number of well-fitted young men and women now seeking entrance to our medical schools, is it not possible that a decade ago many of them would have gone to Hollywood?

E. L. TUOHY, M.D.

# GOVERNMENT COMPETITION WITH ITS CITIZENS

NEW HEALTH bills are being submitted to Congress so fast that it makes one's head swim trying to keep posted on all of them. A compulsory health insurance bill known as S5, submitted on January 5, 1949, was much like the Wagner-Murray-Dingell Bills which have been before Congress each year for the past ten years. This apparently has been superseded by the so-called Thomas Bill (S1679), submitted April 25, 1949, which is just as objectionable as any of the preceding ones. Interested readers may refer to a condensation of the Bill which appeared in the May 7, 1949, issue of the *AMA Journal* (page 114). The Taft Bill (S1581) provides, in brief, Federal subsidy to the states for the medical, dental and hospital care of those unable to pay the full cost, grants for school health services, et cetera. Then there is the Hill Bill (S1456) which provides, in brief, subsidies to the states to provide hospital and medical insurance policies in voluntary prepayment organizations for those deemed unable to purchase such policies for themselves. The question immediately arises as to who shall determine ability to afford such policies.

We believe that the recent appointment of a committee by the AMA to study the many bills being proposed in Congress and to determine the attitude of the profession to them is a very wise step. Editorially speaking, we are opposed to all four of the above mentioned bills, for the simple reason that it is not the function of the Federal government to provide medical care for our citizens. Care, medical or otherwise, that must be given the indigent, should be furnished locally by cities, counties, and states and should not be subsidized by the Federal government. There should also be a limit to what charity even local governments provide.

It is high time for the citizens of our country to decide whether the growing feeling that it is the function of government to support its citizens is proper, or whether such a function is beyond the purpose of government. Our Constitution originally provided for governmental functions designed to protect the citizens from their foes, foreign or domestic, so they could peaceably work out their own destinies without interference. Under the pretext of emergencies, the government

has usurped powers never originally intended. Citizens are forced to contribute to social security, and the employers are forced to contribute an equal amount, which is essentially charity. The employer is also forced to contribute to unemployment funds for his employees. And now there is strong pressure to increase the number of citizens affected by social security to include the self-employed, whether they like it or not. Federal funds are being appropriated for supplying lunches for school children. Is there to be no end to what the government is to supply for its citizens, and will it eventually provide food, clothing, housing and entertainment just as was done in Rome before its fall? An administration that is generous in its "hand-outs" is difficult to dislodge, and a continuation of Federal subsidies and spending is now leading to a deficit of some \$2,500,000,000, with bankruptcy on the horizon. Federal subsidies seemed the logical procedure because the Federal government had larger sources of income. The point has been reached where Federal government spending has exceeded tax collections, and citizens are crying for relief from high taxes.

It is interesting to note that a resolution is to be submitted to the AMA House of Delegates to the effect that whereas constitutional laws are designed to protect the property and enterprises of each citizen, and whereas many governmental agencies are now in active competition with individual enterprises, with every indication of further inroads by the government, the members of the AMA petition Congress to preserve the intent and purposes of the Constitution by initiating an amendment to the Constitution providing that the United States Government shall not engage in any business, or in professional, commercial or industrial enterprises in competition with its citizens except as specified in the Constitution.

The resolution brings to the foreground the question as to whether we are to continue to become more socialistic in our economy with the government competing more and more with private industry, or whether the government is to withdraw from activities not specified in the Constitution. Many such instances are the result of laws enacted by Congress, while some may well be illegal usurpation of power unchecked by the Department of Justice. The adoption of this amendment to the Constitution would of course make it impossible for Congress to legalize gov-

ernmental activities in competition with private industry and would put an end to the competition already in existence.

We shall follow the progress of the proposed amendment to the Constitution with considerable interest.

#### THE STATE MEDICAL MEETING, 1949

THE NINETY-SIXTH annual meeting of the Minnesota State Medical Association, held in Saint Paul, May 9-11, 1949, has now become history. The attendance, though not as large as that recorded last year in Minneapolis, was highly satisfactory, with 1,637 physicians registering, as well as nurses, dietitians, technicians, exhibitors, members of the Woman's Auxiliary and miscellaneous, bringing the total to 3,390.

Dr. Frank J. Elias, Council member from Duluth and recently president of the Council, was chosen president-elect for 1950. Dr. William F. Hartfiel, Saint Paul, was elected first vice president and Dr. C. W. Moberg, Detroit Lakes, second vice president. Dr. B. B. Souster, Saint Paul, was re-elected secretary and Dr. W. H. Condit, Minneapolis, was re-elected treasurer. The Speaker of the House, Dr. Charles G. Sheppard, Hutchinson, and the Vice Speaker, Dr. Haddon M. Carryer, Rochester, were re-elected. Councilors L. G. Smith, Montevideo, Justus Ohage, Saint Paul, and W. W. Will, Bertha, were re-elected to represent the Third, Fifth and Seventh Districts, respectively.

Dr. George Earl, Saint Paul, and Dr. A. E. Cardle, Minneapolis, were elected AMA delegates, with Dr. W. W. Will, Bertha, and Dr. E. M. Hammes, Saint Paul, alternates.

The Southern Minnesota Medical Association award for the best scientific exhibit went to Dr. T. J. Kinsella, Minneapolis, and Dr. W. W. Johnstone, Aw Gwah Ching, for their exhibit on Surgery of Intractable Pulmonary Tuberculosis. Honorable mention went to Dr. E. A. Boyden and his assistants of the University of Minnesota Medical School for their exhibit on Prevailing Patterns and Variation of the Bronchopulmonary Segment.

Dr. E. T. Bell, Chief of the Department of Pathology at the University of Minnesota Medical School, received the 1949 Distinguished Service Award of the Minnesota State Medical Association. The award received the hearty approval of his many admirers.

The following eleven physicians throughout the state were admitted to the Fifty Club, having practiced their profession for fifty years: William R. Bagley, Duluth; Charles W. Fogarty, Saint Paul; James H. Haines, Stillwater; O. C. Heyerdale, Rochester; P. L. Holm, Wells; Charles B. Lenont, Virginia; John S. Macnie, Minneapolis; William A. Miller, New York Mills; Gustav Schwyzer, Minneapolis; A. E. J. Sohmer, Mankato; O. S. Werner, Cambridge.

Among the resolutions passed by the House of Delegates at this session, the most important was the one whereby the Minnesota State Medical Association put

itself on record to "do everything in its power to prevent enactment of laws intended to provide compulsory health insurance or any similar plan which would jeopardize the health of the citizens of the United States." The House of Delegates also went on record as opposed to the extension of the Social Security Act as proposed by Committees of Congress to include self-employed individuals, inasmuch as such individuals would pay amounts greatly in excess of the value of possible benefits. The House of Delegates also took action urging members of the Association to abstain from the use of prescription blanks with druggist's name attached in the interest of good public relations. It seems that such procedure in the minds of the laity too often indicates a commercial relationship between the physician and the druggist which does not exist. The House further went on record as approving the recent legislation for the improvement of the care of the mentally ill in the state, although the bill may not have fulfilled all desirable objectives, and urged the entire medical profession of the state to co-operate in every way in the carrying out of the new program.

One resolution passed by the House constitutes quite a liberalization in our past concept of ethical public relations in the matter of professional advertising and publicity and approved the change, providing it meets with the approval of the component medical societies. Because of its importance and the possibility of repercussions, the resolution is reproduced herewith in full:

#### Resolution

WHEREAS, your Committee on Public Health Education believes that there is an increasing need to secure closer understanding with the press of this state, and

WHEREAS, one criticism frequently heard from the press is that the medical profession expects the press to maintain the entire burden of indirect publicity from the doctor to the public, without any remuneration, and

WHEREAS, as long as this opinion exists, your committee believes that with county medical society approval, doctors may place a professional card stating only the name, address, telephone number and office hours of the doctor in the local newspaper, the said card not to exceed one column in width and two inches in depth; and likewise a component medical society may sponsor special greetings, messages or announcements in the name of the component society, or the members thereof, and announcements, messages and other material sponsored by the component society in co-operation with other groups, now therefore

BE IT RESOLVED, that the Minnesota State Medical Association go on record as approving such cards, announcements, messages and other material, provided the same meets the approval of the component medical society.

#### BB GUNS

The Minnesota Society for the Prevention of Blindness, which has been sparked by some of the state's outstanding oculists, has been sponsoring a bill submitted to the Legislature in recent years to outlaw the BB gun. Oculists, particularly, are conscious of the number of eyes that are lost from accidents due to the

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# MEDICAL ECONOMICS

Edited by the Committee on Medical Economics  
of the  
Minnesota State Medical Association  
George Earl, M.D., Chairman

## HOUSE OF DELEGATES MAKES VITAL MOVES

Recognizing the importance of aggressive action in placing the medical profession beyond the reach of certain stereotyped criticisms, the Minnesota State Medical Association's House of Delegates translated some vital policy decisions into official record during the annual convention, May 9-11.

Unique among the conclusions reached by the medical governing group was a move to "secure closer understanding with the press of this state." In a resolution which admitted that "one criticism frequently heard from the press is that the medical profession expects the press to maintain the entire burden of indirect publicity from the doctor to the public without remuneration," the House of Delegates declared:

"... as long as this opinion exists, ... with county medical society approval doctors may place a professional card stating only the name, address, telephone number and office hours of the doctor in the local newspaper."

Only qualification in the resolution was that the card not exceed one newspaper column in width and two inches in depth.

Another type of advertising was also approved:

"... a component medical society may sponsor special greetings, messages or announcements in the name of the component society or the members thereof, and announcements, messages and other material sponsored by the component society in co-operation with other groups."

### Toward General Approval

On second look, the House found, in a time-honored business custom, another loophole for unfriendly comment from the public.

Outlining the problem, the House wrote:

"It has become a common practice, as a matter of business policy, for druggists to print prescription blanks for the convenience of physicians with the name of the drug establishment and the physician appearing thereon,

and these prescription blanks are distributed to physicians and, in good faith, physicians have used these blanks freely in writing prescriptions for their patients."

Drawback to the custom, according to the House, is that "this practice has led to a mistaken and regrettable belief becoming fixed in the mind of many patients that a commercial relationship exists between the medical and pharmaceutical professions."

Members of the State Association were urged "in the interest of good public relations and the furtherance of public confidence in the high standards maintained by the medical profession as a whole" to use prescription blanks which are not identified with drug firms.

### Evaluates Legislation

The work of the Minnesota State Legislature and, more particularly, the bill it passed to improve the care of the state's mentally ill, came under the scrutiny of the MSMA legislative body.

The mental health bill was received with moderate enthusiasm and annotated by the House: "... it may not fulfill all the desired objectives of the Minnesota State Medical Association in dealing with this problem."

Believing that something is better than nothing, however, the House of Delegates asked all doctors of Minnesota to co-operate in every way in carrying out the program and to assist with future efforts to implement existing legislation.

### On National Level, Too

From the state scene, the House lifted its sights to the national level and protested against what it saw:

"Legislation is now under consideration in committees of the Congress of the United States which proposes extension of the Social Security act to include self-employed individuals. Such a measure is destructive of self-reliance in this group of individuals and such individuals would be found to pay amounts greatly in



excess of possible benefits to be derived and such legislation would constitute another step toward a completely socialistic state."

The House underlined its protest with the firm statement that: "... the Minnesota State Medical Association hereby expresses unalterable opposition to such legislation."

Copies of the resolution were forwarded to President Truman and to the senators and representatives from Minnesota.

### To Dispel Any Doubt

The House of Delegates put its opposition to compulsory health insurance in resolution form:

"WHEREAS, under the system of private practice of medicine, the health of the people of the United States is better than that of any other people; and

"WHEREAS, voluntary, democratic ways have been found most satisfactory in meeting the need for medical care of persons in all income groups, Now, THEREFORE,

"BE IT RESOLVED, that the Minnesota State Medical Association do everything in its power to prevent enactment of laws intended to provide compulsory health insurance or any similar plan which would jeopardize the health of the citizens of the United States."

Copies of the resolution were sent to President Truman and to senators and representatives from Minnesota who were "respectfully requested to use every effort at their command to prevent the enactment of such legislation."

### CRISIS PAST; BUT IT'S ONLY FIRST ONE

Although health insurance, along with the civil rights program, has been lopped off the administration's "must" list, it's too soon to start celebrating—there'll be other sessions of Congress and, from all appearances, there'll be other proponents of compulsory health insurance, socialized medicine or whatever names the scheme adopts as it continues its unsettling path through history.

This is, assuredly, no time to relax medicine's all-out war against Federal control. Whitaker & Baxter, the public relations counsel hired by the American Medical Association, are accelerating the pace with which they produce the ammunition needed by every doctor in America to guarantee his freedom.

This material—posters, pamphlets, leaflets, letters—comes to the state office and is channeled on to every member through special mailings, the Newsletter and personal distribution. Obviously this does not or should not complete the circuit of this factual information. It will not have ac-

complished its purpose until it reaches a large proportion of the reading and thinking and voting public.

### For Your Information

There is, of course, a certain amount of the material that is designed primarily for the doctor's own information, so that he will have quick and ready reference to the refutations that American medicine is voicing.

Among these are suggested speeches, which doctors may revise to fit individual situations, and deliver when asked to speak before various civic, service and social organizations. There is a blueprint of the campaign, citing the major objectives to be reached and an outline of the approaches being used and being contemplated for the future. Forms of resolutions against compulsory health insurance are available, too, and the doctor will find them useful when asked to serve as an adviser to a group which is formulating such a resolution. In this connection, the first of a series of lists of organizations and associations officially on record against compulsory health insurance has been prepared.

### For the Public

An increasing number of brief, easy-to-read folders and pamphlets are ready now for doctors to make available in their waiting rooms or to send out with bills and other mailings:

A folder, illustrated with the famous Fildes painting of "The Doctor" and stating concisely in two parallel columns, headed "compulsory" and "voluntary," the differences between private and political medicine.

A statement by Dr. Elmer Henderson, chairman of the AMA Board of Trustees, entitled "American Medicine Replies to President Truman," printed on one sheet of paper and folded ready for insertion in the standard envelope used for sending bills.

Two attractive pamphlets have been received by the state office in quantities suitable for statewide distribution. They are: "Compulsory Health Insurance—a threat to health, a threat to freedom," and "The Voluntary Way Is the American Way," with fifty questions and answers about compulsory health insurance.

### Localized Materials, Too

To supplement Whitaker & Baxter materials, the state office staff, under the direction of the

Public Health Education Committee, has prepared a selection of form speeches, containing Minnesota health and medical insurance information, news releases, rural and city editions of a tabloid, *Health News and Views*, radio scripts and other manuscripts and publications suitable for all media of communication.

In addition, the state office has gathered reprints, pamphlets and books in quantity lots which doctors may order, at no cost.

### It's Not Enough

The interchange of information and literature is not enough unless the interchange is between doctors and public. This campaign is every doctor's job.

### MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building  
Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

### Minneapolis Osteopath Pleads Guilty to Abortion

*Re. State of Minnesota vs. George M. Wade*

On June 1, 1949, George M. Wade, seventy-nine years of age, a licensed osteopath at 2103 Colfax Avenue South, Minneapolis, was sentenced by the Hon. D. E. La Belle, Judge of the District Court of Hennepin County, to a term of not to exceed four years in the State Prison at Stillwater for the crime of abortion. Judge La Belle suspended the sentence and placed the defendant on probation for two years on condition that the defendant surrender his basic science certificate and his osteopathic license for cancellation by the respective examining boards. Judge La Belle also ordered Wade to dispose of all of his medical and surgical instruments. The Court granted Wade permission to go to Tucson, Arizona, to live with a son of the defendant.

Wade was arrested on April 21, 1949, by Minneapolis police officers following the hospitalization of a twenty-nine-year-old divorcee suffering from the after effects of a criminal abortion. The patient gave a statement in which she alleged that she paid the defendant \$300 for the abortion. The abortion was performed by the defendant by packing the uterus. When arraigned in Court on April 23, Wade waived a preliminary hearing and was held to the District Court under bail of \$5,000 which was not furnished. On April 27, Wade was arraigned in the District Court of Hennepin County and entered a plea of not guilty. He was remanded to jail in default of \$5,000 bail. The case was set for trial for May 5, 1949, but on May 4, Wade came into Court and entered a plea of guilty. The case was then referred to the probation officer for a pre-sentence investigation. Evidence that the defendant had performed other criminal abortions was furnished by the Minnesota State Board of Medical Examiners to the probation officer. A request was also made by the Medical Board that the defendant be required to surrender his basic science certificate and his osteopathic license for cancellation as a condition to the suspension of any sentence. The defendant told the Court that he was born in Nashville, Tennessee, on September 7, 1869, and that he had been a resident of Minneapolis since 1888, graduating from the Northern Institute of Osteopathy in 1900.

### THE VALUE OF THE RORSCHACH TEST

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ship, but suffice to say this important therapeutic lead which was uncovered by the Rorschach analysis led the way to our psychotherapeutic approach. Mrs. O. was seen for three hours a week for four weeks, and when she left for her home town she felt very much better. Several letters from her indicated continued improvement after her return home. Two weeks ago she reported in person and stated that she was entirely free from pain, had gained weight, was active socially and enjoyed life.

This was a case in which, on the basis of the psychosomatic history alone and without special psychiatric investigation, we would have been unable to tell whether the patient's pain was psychogenic or whether she still had some organic somatic disturbance which was reflecting itself in the psyche as a mental depression. On the basis of the Rorschach diagnosis, psychotherapy was instituted and the patient was relieved of all of her physical and mental symptoms. In Case 1 psychotherapy would have been to no avail. In Case 2 it brought results that were eminently gratifying to the patient and, incidentally, to the physician.

### Conclusions

1. The Rorschach test is a projective technique which furnishes us with a three-dimensional view of the personality structure.
2. The Rorschach test furnishes us with useful information and aids in diagnosis, prognosis, and treatment.
3. While most Rorschach tests are administered by clinical psychologists who are not involved in the treatment of the patient, it is advantageous both to the patient and to the psychiatrist if the Rorschach test is administered by the therapist.

### References

1. Dunbar, Flanders: Psychosomatic Diagnosis. New York: Paul Hoeber, Inc., 1943.
2. Kamman, Gordon R.: Psychosomatic diagnosis. *Journal Lancet*, 47:102, (March) 1947.

### STATEWIDE PASTEURIZATION NEXT YEAR

All milk, cream, and other fluid milk products sold in Minnesota on and after July 1, 1950, must be pasteurized (Chap. 403, Laws of 1949). Hitherto, only local pasteurization ordinances have been in effect, and these have been operative in fewer than thirty communities. The date set by the new law allows time for setting up pasteurization machinery in communities that do not yet have it.

# Minnesota Academy of Medicine

Meeting of February 9, 1949

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, February 9, 1949. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 p.m. by the President, Dr. John Lepak.

There were fifty-seven members and eight guests present.

Minutes of the December and January meetings were read and approved.

There being no business to be taken up, the scientific program followed immediately.

## SOME CONSIDERATIONS IN INTESTINAL ANASTOMOSIS

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Even a superficial inspection of the methods of present-day gastrointestinal surgeons shows them to be divided into a larger group who employ the old standard open anastomosis and a smaller one who use the closed or "aseptic" technique. Some value accrues from a brief review of the relative merits of the two disciplines.

Although the work of Halsted,<sup>5</sup> Mall,<sup>6</sup> Parker and Kerr,<sup>13</sup> Gatch,<sup>4</sup> and Holman<sup>6</sup> had featured the desirability of a clean method of intestinal anastomosis, one which would permit apposition of entirely unsoiled serosal surfaces for the purpose, it was not until the introduction of the two-clamp closed method by Martzhoff and Burget<sup>9</sup> in 1936 that any readily feasible means to achieve this end was presented to the clinical surgeon.

For decades prior to 1936 it had been almost universal practice to open the two segments of bowel to be joined, and to make the approximation by two or three layers of running catgut suture about these openings. In the case of the small intestine, in particular, side-to-side anastomoses in this manner had been necessitated by the observation that end-to-end procedures invert enough bowel wall to produce partial or complete obstruction at the suture line. The two unused ends were customarily closed by catgut inversion to produce blind pockets. Such a method was necessarily associated with spillage of bowel content and serosal soiling, even though elaborate techniques were developed to wash out the lumen and to try to limit the contamination to the immediate area.

Through the work of Poth and Knotts<sup>11</sup> and of Ravdin and Zintel,<sup>14</sup> among others, the past few years have shown that the number of bacteria in the bowel can be cut from over 200 million per gram of stool to less than 1,000, and that in some cases the bowel content

could be rendered literally sterile. The stool under some circumstances, therefore, can be rendered far more nearly sterile than is pasteurized milk. In those cases which achieve such a reduction in fecal bacterial content, Poth<sup>10</sup> and his associates have shown that the healing at the suture line is almost free of inflammatory reaction and that mucosal continuity is established far more quickly than in unprepared cases, regardless of whether open or closed methods of anastomosis have been employed.

If, as this work has shown, the bowel can be prepared so that healing is by "primary intention" rather than "secondary," and if this is true regardless of whether an open rather than a closed method has been employed, then is there any reason for preference of the closed over the open method in routine elective surgery on the bowel?

Perhaps a satisfactory answer to this question can be best obtained by study of the situation seen in ileac obstruction. Here the surgery is ordinarily performed as an emergency measure, and sterilization of the bowel content is out of the question. Furthermore there is good evidence that the bacteria which one finds in such cases are more virulent than those seen in unobstructed intestine.<sup>3</sup>

Owings and Smith<sup>12</sup> obstructed the terminal ileum in dogs. At varying intervals thereafter they restored continuity by open anastomotic procedures, in which they were well trained and experienced. They found in a large series that any degree of success required the resection of all distended bowel above the obstruction to a point showing (1) normal color, (2) good muscular response to mechanical stimulation, and (3) good resistance to the surgeon's needle in the substance of the gut wall. Even when these requirements were satisfied, they reported a mortality rate over 30 per cent.

In the closed anastomosis one places narrow clamps across the ends to be sutured together and cuts the bowel (usually by cautery) very close to these clamps, which remain to hold the ends and to keep them closed during the placement of sutures. With proper technique, the clamps may be removed and the sutures drawn snugly and tied without loosening of the mucosal seal produced by the clamps. This seal may be easily loosened by manipulation at the end of the procedure.

In order to evaluate the closed method as against the open, a series of dogs was obstructed as Owings and Smith had done.<sup>12</sup> After a period varying from 3 to 8 days, continuity was restored by end-to-end closed anastomosis.<sup>1</sup> The mortality rate was 6¼ per cent, the single death being due to an obvious error of manipulation. These results were seen in spite of a decision not to resect bowel not satisfying the requirements of Owings and Smith as to viability. A small series restored to

From the Department of Surgery, University of Minnesota Hospitals.

Supported by a Research Grant from the Graduate School of the University of Minnesota.

continuity by the open method suffered a 50 per cent mortality.

Microscopic studies of the anastomatic areas in these dogs showed the healing process to proceed as if obstruction had not been present in those cases in which the closed method had been used. Following the open method, on the other hand, there was violent inflammatory reaction.

An observation of much interest is concerned with the size of the intumed cuff of tissue. In the open anastomoses it was wider and therefore a greater factor as a threat of intestinal obstruction. This same difference was observed in gastroenterostomies in dogs.

Finally, collected data indicate that the mucosa heals in six or seven days if a single layer of silk interrupted sutures is employed, but not until sixteen or seventeen days if a layer of running catgut is left beneath the silk. Furthermore, the presence of the running catgut has been found to be associated with delay or prevention of flattening out of the internal ridge at the suture line. Omission of catgut from the suture line is therefore a logical step.

What is the meaning of these observations in relation to the main question? It is undoubtedly true that if the bowel is already almost free of bacteria, as in gastrectomy for benign ulcer, or after suitable preparation with sulfasuxidine and oral streptomycin, the choice between methods is unimportant and dependent upon the preference of the surgeon. If the case is one in which it is not possible to undertake such preparation or in which such measures are unsuccessful (which occurs in a large portion of cases),<sup>7</sup> then the closed method is much safer.

The closed method with a single layer of interrupted silk sutures is more difficult to learn to do well than the open, and one requiring fairly frequent use to retain the desired dexterity, but with this familiarity it is one which can be done with less use of time and less trauma than the open method.<sup>2</sup> To the author it seems best to use this method routinely in order to retain the facility which will prove essential in the occasional unprepared case. It seems best to the author to use sulfasuxidine preparation regardless of the type of anastomotic technique, and to use the closed method whenever possible in view of the frequent failures of antibiotic preparation.

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#### Discussion

DR. WALTER A. FANSLER, Minneapolis: It was a pleasure to hear this fine presentation and I am always stimulated by Dr. Dennis' thoughts on surgical subjects. Unfortunately for a discussant, Dr. Dennis presents a situation in such a complete and unbiased manner there is little left to add and not too much room for difference of opinion.

Dr. Dennis has stated that he uses both the closed and open methods of anastomoses but that he usually employs the closed method. He has given some very valid reasons for this choice. I think each surgeon is entitled to use the method he prefers and can do the best. Contrary to Dr. Dennis, I have the past three years been employing the open method of anastomosis though I do not say that an occasion could not arise where I might revert to the closed type.

So far as I know, the chief objection voiced against the open method is the possibility of infection and peritonitis. If this is the case, it would be well to consider what the chief causes of postanastomotic peritonitis may be. Is it due to contamination at the time of the operation? I personally do not believe this to be the case. It should be pointed out that contamination is a matter of degree. No type of anastomosis is actually aseptic and, in some instances, contamination may be quite extensive. It must be admitted that the degree of contamination is usually less in the closed type of anastomoses. I would like to point out that the peritoneum is usually able to take care of a rather extensive single contamination without a general peritonitis resulting. Even in the presulfonamide pre-antibiotic days I do not believe that fatal peritonitis often resulted from a single contamination occurring at the time of anastomosis. It is my opinion and experience that, with the proper use of sulfonamides and antibiotics, serious or fatal peritonitis will not result from contamination occurring at the time of anastomosis. At least we have had no deaths from this cause in the past three years.

If this is true, what is the factor in anastomosis which may lead to serious or fatal results? I believe this to be a leak at the suture line which may produce a gross amount of contamination and one which may continue over a period of time. This leak may be caused by necrosis of the suture line caused by improper evaluation of the blood supply to the area of anastomosis, an improperly done anastomosis, or the pressure of gas or stool upon an anastomosis with an inadequate lumen.

I believe the average closed anastomosis results in a smaller immediate lumen than in the case of the open method. The resulting edema and swelling which occurs for a few days postoperatively may block off the opening entirely. At least in my cases of closed anastomoses I occasionally saw distention with active peristalsis lasting several days before gas or feces were passed per rectum. Uncertainty as to how well the suture line and blood supply of anastomoses were standing up under this strain was always a source of anxiety.

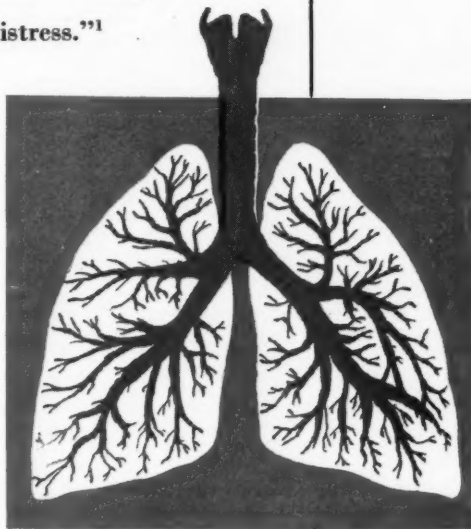
The open method of anastomosis presents no such problem—there is always an adequate opening. From a

(Continued on Page 646)



# paroxysmal dyspnea...

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE



1. Murphy, F. D.: Treatment of Cardio-vascular Emergencies in the Home, Wisconsin M. J. 42:769 (Aug.) 1943

(Continued from Page 644)

technical standpoint, I am better able to judge the adequacy of the blood supply, to apply the anastomosing sutures more easily, and be more sure of a large lumen. This is particularly true of anastomoses done low in the pelvis.

If these assumptions as to the cause of peritonitis are correct, it would seem that we should not concern ourselves too much about the question of contamination at the time of anastomoses but should concentrate our attention upon a well-done anastomosis which has large and adequate lumen, and a blood supply which will insure proper nourishment to insure healing of the suture line. It is my belief that these three essential conditions can be more easily and surely accomplished by an open type anastomosis, at least in the hands of the majority of surgeons.

My remarks thus far have been intended to deal with those cases where no high degree of obstruction is present. While we ultimately employ the open method of anastomosis in all cases, there is a different method of approach in cases with severe obstruction. In the case of the small bowel, sufficient decompression can usually be accomplished by the Wangenstein suction or its several more recent modifications so that an open anastomosis can be done satisfactorily. In colon cases, where there is a complete obstruction or a very small lumen with accumulated feces above, a temporary colostomy is done above the site of the obstruction. If the amount of stool is small or liquid and there is not too much edema and thickening of the bowel wall, the gut may be decompressed with a trochar and suction and anastomosis done at once. Where a preliminary colostomy is done it is our custom, after a suitable interval, to do an open anastomosis at the site of the obstruction and to close the colostomy during the same surgical session, thus eliminating a third procedure.

In closing, let me again compliment Dr. Dennis upon his very fine presentation and express my appreciation to Dr. Wangenstein for his fundamental contributions which have been a great factor in reducing the mortality in intestinal surgery. Any difference of opinion I may have with the essayist is entirely a personal feeling as to method. However, to discuss the matter in an academic, non-personal, non-acrimonious manner is always pleasant, interesting and instructive.

DR. M. B. VISSCHER, University of Minnesota: I am very pleased to hear Dr. Dennis' presentation for many reasons. I think the practical problems, aside from those of rotation of the gut for anastomosis, are not primarily physiological problems, but rather have to do with bacteriology.

DR. R. L. VARCO, University of Minnesota (by invitation): Dr. Dennis has given a scholarly and unprejudiced exposition of the advantages as well as limitations of both the open and the closed types of intestinal anastomoses. My personal preference is for the latter, though this may stem as much from provincialism as from any deep-rooted conviction. Upon occasion, particularly in the newborn where the bacterial flora is of relatively low virulence or even absent, the decision to perform an open anastomosis because of the luminal dimensions, may be a wise one. An example of the other extreme is represented by an adult suffering from unrelieved high-grade small bowel obstruction. Here, the gut harbors myriads of pathogenic organisms and the performance of a closed type of anastomotic procedure decreases the hazards from inadvertent or coincidental soiling during the operation. In general, I believe that a man, his judgment, and his skill are wiser arbiters of a patient's surgical predicament than any attitude of inflexible adherence to a single technique.

DR. DENNIS, in closing: I wish first to thank the discussors of my paper. Usually as I listen to Dr. Fansler talk, I find that he has approximately the same ideas as I. If we do a closed anastomosis in the descending colon in a patient who already has a transverse colostomy, and if we defer the closure of that colostomy for a period of time, we have found on many occasions that the stoma of the anastomosis becomes progressively smaller as time passes. We have sometimes been concerned about the closure of the colostomy for this reason. I would rather relish having some idea from Dr. Fansler as to whether or not he has seen this same situation in open anastomoses made in the descending colon. In general, it seems to me that, except for the emergency indications that have been covered in the paper, the surgeon is best advised to do that type of anastomosis which he finds he can do most easily.

The meeting was adjourned.

A. E. CARDLE, M.D., Secretary.

## BB GUNS

(Continued from Page 639)

unsupervised use of the BB gun by youngsters. Until this year the efforts of the Society have been ineffectual.

Active in drawing up the proposed bill this year for the Minnesota Society for the Prevention of Blindness were Mr. Amos S. Deinard, past president of the Society, Mr. Louis W. Hill, treasurer, and Joseph Prifrel, Jr., a past board member. Although the Society was particularly interested in an act completely outlawing the BB gun, it considers the passage of the so-called Sportsman's Bill (H. F. 930), which classifies the BB gun as a firearm, a step forward in its efforts to reduce accidents.

In brief, the bill provides:

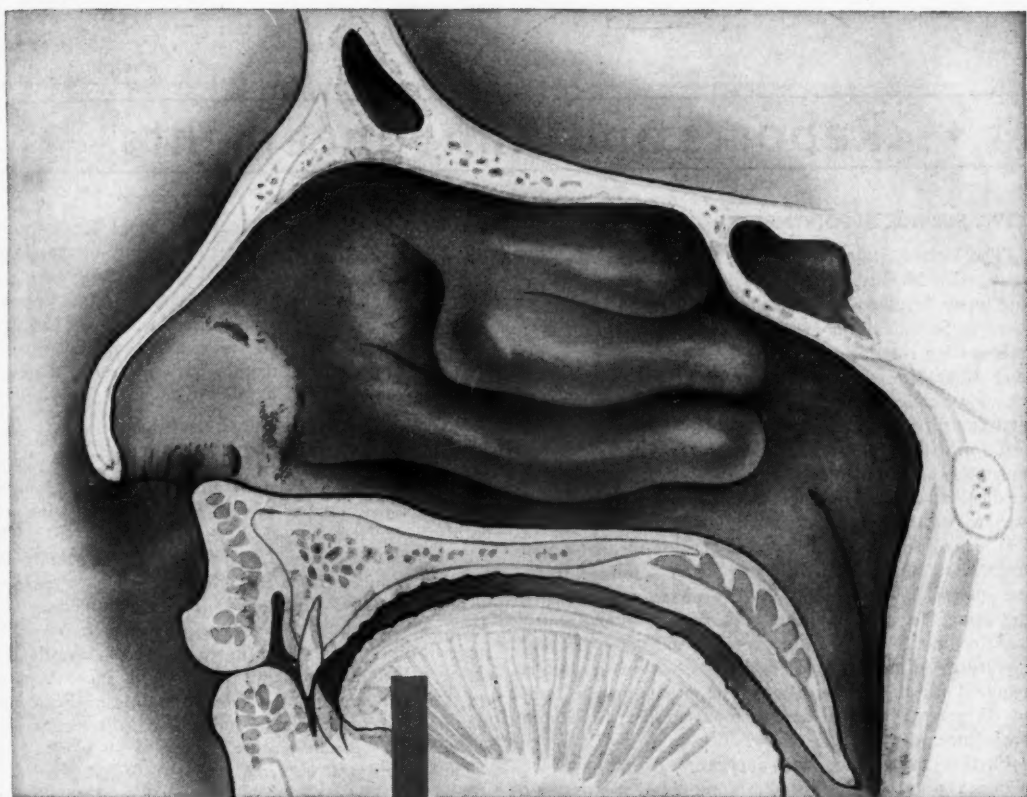
It is a misdemeanor to aim firearms, whether loaded or not, at or towards any human being or to wilfully

discharge any firearm, air gun or other weapon . . . in a public place or in any place where there is any person to be endangered, although no injury actually results.

No minor under the age of 14 years shall handle or have in his possession or under his control, except while accompanied by or under the immediate charge of his parent or guardian, any firearm or air gun of any kind for hunting or target practice or any other purpose. Every person violating any of the foregoing provisions, or aiding or knowingly permitting any such minor to violate the same, shall be guilty of a misdemeanor.

No person, in any city in this state, shall sell, give, loan, or in anywise furnish any firearm, or air gun, or ammunition, to a minor under the age of 18 years without the written consent of his parents or guardian, or of a police officer or magistrate of such city.

Any person who violates any provision of this section is guilty of a misdemeanor.



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JUNE, 1949

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## ◆ Reports and Announcements ◆

### CIVIL SERVICE APPOINTMENTS

The United States Civil Service Commission has announced a Medical Officer examination for filling rotating intern psychiatric resident, and surgical resident positions in St. Elizabeths Hospital, Washington, D. C. The salaries for rotating interns are \$2,200 for the first year and \$2,400 for the second year; the salaries for psychiatric resident range from \$2,400 to \$4,100 a year; and for surgical resident, from \$3,400 to \$4,150.

To qualify, applicants for the rotating intern positions must be third- or fourth-year students in an approved medical school. Applicants for psychiatric resident and surgical resident positions must be graduates of a medical school with the degree of doctor of medicine, and must have completed a full year in an approved rotating internship. In addition to the above requirements, applicants for appointment as surgical resident must have completed three full years as residents-in-training in surgery in an approved residency. No written test is required for this examination. The maximum age limit of 35 years is waived for persons entitled to veteran preference.

Further information and application forms may be obtained at most first- and second-class post offices, from civil service regional offices, or from the U. S. Civil Service Commission, Washington 25, D. C. Applications will be accepted by the Commission's Washington office until further notice.

### UNITED STATES AIR FORCE MEDICAL SERVICE

Organization of the United States Air Force Medical Service within the Department of the Air Force has been announced.

Highlight of the plan for the service is the provision assuring career opportunities for personnel. Housing for medical officers and their families, stability of assignment and opportunities for medical and scientific advancement are features of the plan.

Medical specialists are assured of opportunities for advanced training in both clinical medicine and research in aviation medicine. Professional facilities of general hospitals and laboratories, approved civilian institutions and air force facilities will be used to provide regularly spaced training tours for members of the air force medical service.

The plans are designed to correct major objections of professional people to a career in the armed forces. Medical officers will be given every opportunity to pursue their specialties and doctors and dentists who volunteer to serve for more than one year will continue to receive the extra \$100 a month. Officers, nurses, and enlisted technicians who qualify and are assigned flying duties will receive additional hazard pay.

The service will be manned by both regular and reserve officers, reserve officers having the prerogative of serving limited periods of active duty. Civilians desiring

regular or reserve commissions may apply directly to the Surgeon General, U. S. Air Force, Washington, D. C.

Recognition of prior professional training and previous military service will be given in original appointments. Regular and reserve officers who have had duty with the army air force may apply to the surgeon general for transfer to the new air force medical service before July 26.

### RESEARCH FELLOWSHIPS AVAILABLE

The American College of Physicians has announced that a limited number of fellowships in medicine will be available from July 1, 1950, to June 30, 1951. The fellowships are designed to provide an opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for physicians who are in the early stages of preparation for a teaching and investigative career in internal medicine. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that he will be provided with facilities for the proper pursuit of his work.

The stipend will be from \$2,200 to \$3,200.

Application forms may be obtained from the American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania. They must be submitted in duplicate not later than October 1, 1949. Announcement of awards will be made in November, 1949.

### COURSE IN GASTROINTESTINAL SURGERY

The National Gastroenterological Association, in cooperation with the Postgraduate Division of Tufts Medical College School and the First and Second Surgical Services of the Boston City Hospital, announces a course in gastrointestinal surgery to be given at the Boston City Hospital on October 27, 28 and 29.

The course will be under the direction of Dr. Owen H. Wangenstein, professor of surgery at the University of Minnesota Medical School, assisted by Lord Alfred Webb-Johnson, president of the Royal College of Surgeons, London, and members of the surgical staff of the Boston City Hospital.

Enrollment in the course is limited to 250, with the fee \$35 per person. Veterans may take the course under the GI Bill of Rights. Further information may be obtained from the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23, N. Y.

### AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-seventh annual scientific and clinical session at the Netherland Plaza Hotel, Cincinnati, September 6 through 10. Two instruction courses, each consisting of ten lectures, will be offered during the session. One course will be limited to physicians, while the other

(Continued on Page 650)



## *An Announcement of* **BLOOD TRANSFUSION SERVICE**

The organization of the Minneapolis War Memorial Blood Bank is now complete and its services are available to the people and physicians of this area.

The bank is a non-profit, self-supporting organization sponsored by the Minneapolis Junior Chamber of Commerce under the supervision of the Hennepin County Medical Society.

G. Albin Matson, Ph.D., Director of the bank, has been active in blood banking, Rh work and research for many years. When the American Association of Blood Banks was organized, Dr. Matson was elected as its first President and is now regional member of its Board of Governors.

Dr. Matson, backed by selected personnel and excellent physical equipment, is now available to help physicians and hospitals in their studies of Rh problems, preparation of Rh hapten, management of difficult transfusions, selection of special bloods, preparation of blood products (washed red cells, red cell paste, special plasma), genetic and paternity studies, and any similar blood problems.

Dr. Matson and his staff will assist hospitals or communities in organizing blood banks. The blood banking facilities of the Upper Midwest area are to be integrated for each other's assistance in normal times and for protection in case of public disaster.

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## REPORTS AND ANNOUNCEMENTS

### AMERICAN CONGRESS OF PHYSICAL MEDICINE

(Continued from Page 648)

will be open to physicians as well as physical therapy technicians who are registered with the American Registry of Physical Therapy Technicians. Full information may be obtained from the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

### RED RIVER VALLEY SOCIETY

A meeting of the Red River Valley Medical Society was held in Warren on April 29. The principal speaker at the meeting was Dr. Harold F. Buchstein, Minneapolis neurosurgeon, who discussed brain tumors. Following his talk, Dr. Buchstein conducted a question-and-answer session on the same subject.

### SCOTT-CARVER COUNTY SOCIETY

The Scott-Carver County Medical Society held a meeting in Waconia on April 22. Guest speakers at the meeting were Dr. A. I. Braude, Minneapolis, and Dr. Henry H. Young, Rochester.

### SAINT PAUL SOCIETY OF INTERNAL MEDICINE

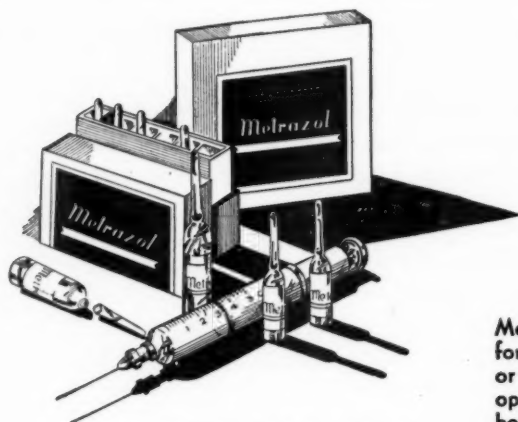
The history of the Saint Paul Society of Internal Medicine, now two years old, which grew out of a small group of Saint Paul physicians, forms an interesting account.

In the years 1945 and 1946, eight or ten Saint Paul internists formed a Journal Club to meet following the St. Lukes Hospital staff meetings. This group included

Drs. J. F. Borg, J. F. Briggs, David Craig, Harvey Beek, W. Hollingshead, Dwight Martin, and Ben Sommers. During their meetings, a Saint Paul Society of Internists was discussed and planned, and a very informal meeting to discuss the formation of such a society took place in August, 1947, at the home of Dr. Ben Sommers.

The first actual meeting of the society was held Monday evening, September 29, 1947, in the Century Room of the Lowry Hotel. This meeting like those to follow was a dinner meeting, and Dr. Harold Richardson stated in a few introductory remarks that the arrival in Saint Paul, since the war, of well-trained internists had swollen the ranks to approximately fifty men specializing in this field. This number seemed sufficient to make the formation of a society both feasible and desirable for both scientific and social reasons. It was decided that the society should be open to all men limiting their practice to internal medicine, irrespective of certification by the board. Two types of membership were formed: the active membership for those men who had been certified by the board or who had practiced the equivalent of five years of internal medicine, and associate membership for those who had not practiced the full five years. Dr. John Lepak was nominated temporary chairman and was elected president at a subsequent meeting. Twenty-six members were present at this meeting.

The Saint Paul Society of Internal Medicine holds two regular meetings a year, in October and April. The meetings take place in the Lowry Medical Arts Building in the Ramsey County Library. Formal papers are presented by members of the society or by guests. Discussion of papers presented is usually active.



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Council on Pharmacy and Chemistry, A.M.A.  
J.A.M.A. 137:789 (June 26) 1948.

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## In Memoriam

### FLORENCE A. RICHARDSON

Dr. Florence A. Richardson, for many years a practitioner in Minneapolis, died in Omaha, Nebraska, April 16, 1949.

Dr. Richardson was graduated from the University of Michigan medical school in 1895. She interned at Northwestern Hospital. She did not practice during her marriage to Dr. Oscar K. Richardson, but upon his death in 1909 resumed practice in Minneapolis.

Dr. Richardson was a member of the Alpha Epsilon Iota national medical sorority. She was a past president of the Women's Rotary Club, served as juvenile court physician and was on the health education staff of the YWCA.

Dr. Richardson is survived by a daughter, Mrs. Dorothy R. Wilbur, of Omaha.

### OTTO FREDERICK SCHUSSLER

Dr. Otto F. Schussler, an orthopedic surgeon of Minneapolis, retired since 1930, died April 19, 1949.

Dr. Schussler was born at St. Cloud, Wisconsin, October 10, 1873. He attended Central High School in

Minneapolis and obtained his medical degree from Hamline Medical School in 1905. His internship was served at Minneapolis City Hospital.

During the period of 1905 to 1920 he was a surgeon in contract practice in railroad construction and mining in the West. He spent a year in postgraduate study in Vienna and Berlin in 1912.

Dr. Schussler practiced orthopedic surgery in Minneapolis from 1920 to 1930 and was at one time vice president of the Fairview Hospital staff in Minneapolis. He was also a member of the Hennepin County Medical Society, the Minnesota State and American Medical Associations.

Dr. Schussler married Edith May LaMoreau. They had no children.

A few years ago the *London Spectator* offered a prize for the best philosophy of life which could be written on the back of a postcard. The entry that won the prize could almost have been written on the back of a postage stamp. There were just eight words in it: "Love, trust, dare, and go on doing it."

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# Woman's Auxiliary

## NEW PRESIDENT EXTENDS GREETING

Mrs. H. E. Bakkila

During the next year I ask for the loyal support and help of every member of the Woman's Auxiliary to the Minnesota State Medical Association, for the work of the Auxiliary depends entirely on the effort of every individual member. If we all work together, Minnesota will have another successful year.

The Auxiliary, while not changing in its objectives and policy, has seen within the past several years, more stress placed on public relations or in a National Educational campaign. It is our duty and privilege to assist the AMA and our own Minnesota State Medical Association in an effort to educate the American public as to the advantages of voluntary health insurance and the disadvantages of compulsory or political health insurance. Each of us, if we are well-informed, can, through our many contacts with other women's clubs throughout our own counties, assist the doctors in this campaign by serving on committees, securing speakers, arranging programs, and doing such work as may be approved by the Minnesota State Medical Association.

I appreciate the honor you have shown me by electing me to serve as your president and representative. At all times I shall endeavor to carry on the high ideals set forth in the Auxiliary pledge.

## MRS. WAAS NEW PRESIDENT-ELECT

Mrs. Charles W. Waas, Saint Paul, is the new president-elect of the Woman's Auxiliary, slated to move up to the presidency at the next annual meeting. Other new officers are: Mrs. Joseph M. Neal, Minneapolis, first vice president; Mrs. C. L. Sheedy, Austin, second vice president; Mrs. F. P. Moersch, Rochester, third vice president; Mrs. L. A. Stelter, recording secretary; Mrs. John Dordal, Sacred Heart, treasurer; Mrs. O. M. Heiberg, Worthington, auditor.

Mrs. Bakkila announced the following appointments May 10: Mrs. Harry Klein, Duluth, corresponding secretary; Mrs. S. S. Hesselgrave, Center City, parliamentarian; Mrs. T. O. Young, Duluth, historian; Mrs. T. N. Fleming, St. Cloud, archives; Mrs. W. H. Von der Weyer, Saint Paul, bulletin; Mrs. Mark E. Ryan, Saint Paul, cancer; Mrs. S. N. Litman, Duluth, editor, MINNESOTA MEDICINE.

Mrs. Henry Quist, Minneapolis, finance; Mrs. J. A. Cosgriff, Olivia, *Hygeia*; Mrs. L. Raymond Scherer, Minneapolis, legislation; Mrs. Virgil Schwartz, Minneapolis, medical and surgical relief; Mrs. Charles W. Waas, Saint Paul, organization; Mrs. N. O. Pearce, Minneapolis, press and publicity; Mrs. A. Christiansen, Saint Paul, printing; Mrs. David Halpern, Brewster, program and health education.

Mrs. E. W. Miller, Anoka, public relations; Mrs. H. H. Fesler, Saint Paul, resolutions; Mrs. George Penn, Mankato, revisions; Mrs. Karl Wold, Saint Paul, Mrs.

O. I. Sohlberg, St. Paul, Mrs. P. S. Rudie, Duluth, Mrs. F. R. Kotchevar, Eveleth, Mrs. A. F. Giesen, Starbuck, Mrs. L. P. Howell, Rochester, social; Mrs. Leonard Arling, Minneapolis, Newsletter; Mrs. Harold C. Benjamin, Minneapolis, roster; Mrs. Reuben Erickson, Minneapolis, Workshop.

Mrs. Anthony J. Bianco, Duluth, Mrs. E. V. Goltz, Saint Paul, Mrs. F. S. McKinney, Minneapolis, Mrs. J. A. Thabes, Brainerd, Mrs. Melvin Henderson, Rochester, advisory committee; Dr. F. J. Elias, Duluth, Dr. E. M. Hammes, Saint Paul, Dr. A. E. Cardle, Minneapolis, Dr. R. N. Barr, Minneapolis, R. R. Rosell, Saint Paul, medical advisory council.

The Board approved a special Committee on Health Days, after which Mrs. Bakkila appointed Mrs. H. F. Wahlquist, chairman.

## AUXILIARY OUTLINES HEAVY SCHEDULE

Meeting in annual session at Saint Paul, May 9-11, the State Auxiliary lined up a heavy schedule of work for the coming year, voting to continue projects begun this year and initiating new activities to further implement their program.

Continued will be the extensive educational campaign supplementing medical association work on three levels—national, state and county. Members will distribute informational material, fill speaking engagements and work with other groups in attaining complete public understanding of the problem of adequate medical care. At the suggestion of Mrs. O. B. Fesenmaier, the organization voted to authorize county Auxiliary presidents, with the assistance of their medical advisers, to write to presidents of other women's organizations in each county, requesting that letters opposing compulsory health insurance be written to President Truman and Minnesota congressmen.

The public relations workshop, inaugurated last fall, will be held again this fall, and Auxiliary members will continue their highly successful schedule of Community Health Days in Minnesota.

Many members attended the splendid exhibit on Auxiliary Health Days. Action was also taken to continue the *Newsletter*.

Mrs. Mark E. Ryan, speaking for the Cancer Committee, asked that a cancer chairman be appointed, whenever possible, in each county, thus further assisting the State organization's work in all fields of public health.

Growth of the Auxiliary itself was reported by Mrs. Bakkila, who listed three new county units and 539 new members, bringing the total membership to 2,048.

Mrs. S. S. Hesselgrave, who has served as a national officer, state president, parliamentarian and adviser, was made an honorary member, with all rights of membership and was presented with a gift in appreciation of her outstanding service.

(Continued on Page 656)

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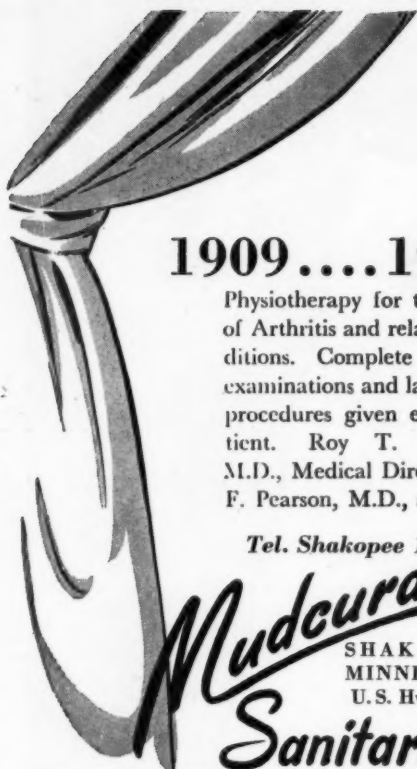
Sodium propionate 12.3%  
Propionic acid 2.7%  
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# AUXILIARY OUTLINES HEAVY SCHEDULE

(Continued from Page 654)

During the memorial services for deceased members, conducted by Mrs. J. F. Norman, Crookston, special tribute was paid to Mrs. James Blake, Sr., of Hopkins, past national president, former county and state president, and Mrs. A. MacLaren, St. Paul, founder of the State Auxiliary.

Fourteen past presidents attended the meeting: Mrs. Hesselgrave, Mrs. Adolph Passer, Mrs. Martin Nordland, Mrs. F. J. Elias, Mrs. E. M. Hammes, Mrs. J. F. Norman, Mrs. W. B. Roberts, Mrs. A. C. Baker, Mrs. J. J. Ryan, Mrs. F. S. McKinney, Mrs. Anthony Bianco, Mrs. E. V. Goltz, Mrs. M. S. Henderson and Mrs. J. A. Thabes.

Reports were given by county auxiliary presidents: Blue Earth, Mrs. J. D. Sjoding; Blue Earth Valley, Mrs. E. E. Zemke; Hennepin, Mrs. Reuben Erickson; Mower, Mrs. L. G. Flanagan; Olmsted-Houston-Fillmore-Dodge, Mrs. B. M. Black; Park Region, Mrs. C. A. Boline; Ramsey, Mrs. H. H. Fesler; Red River Valley, Mrs. Orlo K. Behr; McLeod, Mrs. A. M. Jensen; Renville, Mrs. J. A. Cosgriff; St. Louis, Mrs. P. S. Rudie; Southwestern, Mrs. W. J. Benjamin; Stearns-Benton, Mrs. Julius Buscher; Clay-Becker, Mrs. C. W. Moberg; Upper Mississippi, Mrs. I. L. Mitty; Wabasha, Mrs. B. A. Flesche; Winona, Mrs. A. E. Meinert.

Reports of presidents not present were filed. Practically every organized auxiliary had representation at either the Board sessions or the annual meeting.

The constitution was revised, in part, so that the Board of Directors now includes regional advisers, in addition to officers, presidents of county Auxiliaries, delegates or alternates, chairmen of standing committees and past-presidents. Section six, Article V of the by-laws was revised to read:

"Members-at-large shall pay to the state treasurer one dollar initial fee and annual dues of one dollar payable January 1, plus the per capita fee due the Woman's Auxiliary to the American Medical Association."

Mrs. H. F. Wahlquist, 1948-49 president, was given an enthusiastic ovation as she turned over the duties of her office to Mrs. Bakkila.

Said Mrs. Wahlquist: "I know of no other group I should be more honored to serve. The happiness you have given me through your loyalty and co-operation is inexpressible."

Referring to the work the Auxiliary has done, under the sanction of the State Medical Association, Mrs. Wahlquist pointed out, "With this (Auxiliary) membership go opportunities of service and leadership. We all recognize clearly now that an organization which is not behind worthwhile projects is not worthy of existing—social entertainment is not enough today."

## STATE LEGISLATURE PASSES HEALTH BILLS

Mrs. Elmer M. Rusten

In the 1949 session of the Minnesota Legislature 1,665 bills were introduced in the Senate and 1,839 bills in the House, of which a total of 724 bills became law.

(Continued on Page 658)

MINNESOTA MEDICINE



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**STATE LEGISLATURE PASSES HEALTH BILLS**

(Continued from Page 656)

Among the bills involving medicine to become law, the following seem particularly worthy of comment:

**Multiple County Health Units Bill.**—This was essentially the same bill which failed to pass two years ago. It makes permissible the establishment of multiple county health departments, with the use of federal funds allocated for this purpose, if and when they are made available.

**Control of Incurable Tuberculosis Patients.**—A great deal of confusion has existed up to the present time as to where responsibility resides in re-committing incurable tuberculous patients who leave, without authority, the sanatoria where they are undergoing treatment. This bill strengthens and clarifies present laws with respect to these undisciplined persons who can easily become public health menaces if they are not properly handled.

**Pasteurization Bill.**—No milk, cream, or fluid milk products may be sold unless pasteurized. (Casual sales on farms excepted). This bill was submitted primarily in the interest of better control of brucellosis. The morbidity rate from brucellosis has increased five times in the last ten years.

**Cancer Statistical Research.**—This legislation is designed to make cancer and tumor cases reportable to

the State Health Department and to protect hospitals and physicians in their reporting of these cases.

**Legislation to permit the use of unclaimed dogs in public pounds** by the State University for research purposes. These animals have remained unclaimed in pounds for long periods and would otherwise be destroyed.

**Legislation to expand the State Mental Health Program** and provide an increased appropriation for that purpose. This legislation outlined principles and goals and dealt with the educational and preventive aspects of a strong mental health program for the State. It provided for a Commissioner of Health to direct the state program to be appointed by the head of the Department of Public Institutions, selected as the State Agency through which any state, federal or other funds are to be allocated. The Minnesota State Medical Association tried to amend the bill to stipulate that the preventive aspects should reside with the Minnesota Department of Health under the direction of its trained professional staff. It is hoped that the actual administration of the program will be so handled.

**Control of the BB or Air gun** was affected when the Minnesota legislature enacted into law legislation which classifies this weapon as a "firearm" and subjects the BB gun to the same controls as any gun, pistol, revolver or other firearm. Sight-saving groups were particularly interested and active in the passage of this measure.



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## ◆ Of General Interest ◆

"Let's Talk About Health," the weekly quarter-hour radio program presented by Dr. Robert N. Barr of the Minnesota Department of Health, is now heard at a new time—7:00 p.m. on Mondays—over Station KUOM.

During July, representatives of four divisions of the health department will give the following talks on this program: July 4—How to Enjoy a Holiday. July 11—The Story of Askov. July 18—Eating Without Regrets. July 25—Safety on the Farm.

\* \* \*

Dr. Ralph J. Eckman Duluth, was the principal speaker at the annual ladies' night meeting of the Brotherhood of Lakeside (Bethany Lutheran Church in Duluth, on May 10. Dr. Eckman spoke on "Socialized Medicine."

\* \* \*

The Northwestern Clinic in Crookston acquired a new radiologist in April when Dr. George S. Boyer became a member of the staff. A graduate of the University of Oregon Medical School in 1938, Dr. Boyer served in the air forces from 1939 to 1946. For the past three years he has studied radiology at the University of Minnesota Hospitals.

\* \* \*

Dr. Ernest Gellhorn, professor of neurophysiology at the University of Minnesota, has been invited to address the Royal Society of Medicine in London on September 13. The subject of Dr. Gellhorn's talk will be "The Physiological Basis of Shock Therapy of Mental Diseases."

\* \* \*

Following the completion of the north section of a new medical clinic building in Northfield, Dr. Stanley T. Kucera opened his offices in the building on May 2. Dr. Warren E. Wilson and Dr. Bernard Street planned to move their offices into the new building as soon as the other wing of the structure could be completed.

\* \* \*

Dr. Eugene L. Bauer has opened an office in the Lowry Medical Arts Building, Saint Paul, where he will specialize in otolaryngology. Dr. Bauer recently completed a fellowship in the Mayo Foundation in Rochester.

\* \* \*

At the annual banquet of the University of Minnesota chapter of Nu Sigma Nu medical fraternity, held at the Minnesota Club, Saint Paul, on April 20, the principal speaker was Dr. Stuart Graves, dean emeritus of the University of Alabama School of Medicine. Dr. Graves was introduced at the banquet by Dr. Charles N. Hensel, Saint Paul, president of the board of governors of the Twin Cities Alumni Association of the chapter.

\* \* \*

It was announced late in April that the practice of Dr. J. C. Klein in Shakopee had been acquired by Dr. Lawrence H. Heinz and his wife, Dr. Ivy B. Heinz,

of Wabasso. The husband-wife medical team planned to arrive in Shakopee about June 1 to take over the practice. Dr. Klein, a graduate of Marquette University, who has practiced in Shakopee since 1936, planned to spend the summer in northern Minnesota.

\* \* \*

"Emotional Problems of Children," was the title of a talk presented by Dr. Edward D. Anderson, Minneapolis, at a meeting of the Lake Harriet Parent-Teachers Association in Minneapolis on May 10.

\* \* \*

Dr. John J. Bittner, professor of cancer research and director of cancer biology at the University of Minnesota, was invited by the Vatican Academy of Science to participate in an international cancer conference in Rome in early June. Unable to make the trip to Rome, Dr. Bittner prepared a paper on "Etiology (Theory of Causation) of Mammary Cancer in Mice," which was read at the conference by Pietro Rondoni, professor of general and experimental pathology at the University of Milan, Italy.

\* \* \*

At a meeting of the Mora Civic Club on April 22, Dr. Willard F. Nordman, as guest speaker, advocated the hiring of a county nurse, a move being considered in Kanabec County at the time. Dr. Nordman pointed out the value of having a county nurse, especially as an aid in the control of tuberculosis in the county.

\* \* \*

Speaking at a meeting of the Monroe Parent-Teachers Association in Duluth on April 21, Dr. Karl E. Johnson, Duluth, said that the effects of compulsory health insurance would be similar to the abuses of "sick call" in the armed forces. Pointing out that the government health plan would promote complaints of insignificant ailments, the ex-navy physician said, "If the same proportion of civilians came in for medical attention as reported for sick call in our unit, we would have about 3,600 persons a day crowding our offices in Duluth under a system of compulsory health insurance."

\* \* \*

Among physicians attending a six-day continuation course in proctology at the University of Minnesota, April 11 through 16, were Dr. Frederick W. Behm-ler, Morris; Dr. C. H. Holmstrom, Warren; Dr. Paul F. Meyer, Faribault, and Dr. Troy G. Rollins, Elmore. In addition to lectures at the Center for Continuation Study, clinics were held at Minneapolis General Hospital and the Veterans Hospital.

\* \* \*

Dr. Nora M. C. Winther, Minneapolis, left for England on May 12 to attend an obstetrics and gynecology conference in London.

\* \* \*

It was announced in April that Dr. H. K. Helseth of Fergus Falls had moved to Mott, North Dakota, where he intended to go into private practice.

## OF GENERAL INTEREST

According to an announcement on May 3, grants of \$293,452 to support laboratory and clinical research and \$79,853 for research facilities were recently made by the National Cancer Institute. The grants were approved by Surgeon General Leonard A. Scheele of the Public Health Service following recommendation by the National Advisory Cancer Council.

\* \* \*

Two Rochester physicians were on the program at a meeting of the Southwestern Minnesota Medical Society in Worthington on April 25. Dr. David C. Dahlin spoke on "Carcinoma of the Uterus," and Dr. Charles F. Stroebel presented a paper on "Recent Advances in Hematology."

\* \* \*

In April, Dr. Lester N. Dale, Red Lake Falls, announced that Dr. James Reinhardt would become associated with him in the Red Lake Falls Clinic early in July. Dr. Reinhardt, formerly of Detroit Lakes, is a graduate of Temple University. He served his internship at Northwestern Hospital, Minneapolis.

\* \* \*

At a meeting of the Iowa State Medical Society in Des Moines on April 21, Dr. Arthur M. Olsen spoke on "Differential Diagnosis of the More Common Pulmonary Conditions."

\* \* \*

Two Duluth organizations recently heard talks on government medicine by Dr. Arnold O. Swenson, Duluth. Speaking at a meeting of the Duluth Optimist Club on April 22, Dr. Swenson urged club members

to oppose national compulsory health insurance. On May 6, at a meeting of the West Duluth Women's Club, Dr. Swenson spoke on "Socialized Medicine in Europe."

\* \* \*

It is better to live well than long, Dr. Thurman B. Rice, head of the department of public health at Indiana University, told an audience at the Ramsey County Health Day in Saint Paul on April 21.

Saying that the important thing about living is to have fun, Dr. Rice stated that the average limit of human life will probably be the Biblical three-score-and-ten years and that it is better to enjoy a short life than endure a long one. Death for old people, he said, as a rule, is a relief, not a curse. He suggested that the way to grow old gracefully is to enjoy life as it comes, to realize it is right that changes in life come when they do.

\* \* \*

Dr. Marjorie M. Pyle, of Mineral Springs Sanatorium at Cannon Falls, was one of six persons in the nation to receive a tuberculosis research fellowship, it was announced by the American Trudeau Society at a meeting in Detroit on May 1. The award was presented at the society convention, which was attended by 2,000 physicians' nurses and health workers from all parts of the country.

\* \* \*

Announcement was made on April 17 that Dr. Jack E. Geist, Saint Paul, had been commissioned a first lieutenant in the regular army medical corps.



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Members of the Rice County Medical Society, meeting in Faribault on April 27, heard Dr. M. W. Anderson, Rochester, speak on "Treatment of Coronary Heart Disease." On May 4, Dr. Anderson spoke on the same subject at a meeting of the Lyon-Lincoln County Medical Society in Marshall.

\* \* \*

On May 2, Dr. G. Albin Matson, formerly of Salt Lake City, became director of the Minneapolis War Memorial Blood Bank. Dr. Matson, former president of the American Association of Blood Banks, has published eighteen papers on his investigative work concerning the blood Rh factor. In Salt Lake City he was director of the city's centralized blood banking system. The Minneapolis War Memorial Blood Bank was set up by the Junior Chamber of Commerce with the encouragement and assistance of the Hennepin County Medical Society.

\* \* \*

A feature of the Faribault Lions Club meeting on April 21 was the presentation by Dr. James J. Kolars of a wire-recorded address on "Socialized Medicine" by the president of the AMA.

\* \* \*

At a meeting in April, two Minneapolis physicians were honored by Fairview Hospital authorities for more than thirty-three years of service as members of the hospital staff. The hospital board presented honorary scrolls to Dr. Henry Lysne and Dr. Ivar Sivertsen, com-

mending them for their years of "cheerful service, superior leadership, high standards and unselfish loyalty."

\* \* \*

A Rochester physician, Dr. Russell Wilder, is one of the first two men to receive the Howard Taylor Ricketts award for outstanding medical work. The award was presented at the University of Chicago on May 23. The other recipient of the award was Dr. Ludvig Hektoen, who was the first chairman of the University of Chicago's pathology department.

The award was established by the wife of the late Dr. Ricketts, who died of typhus fever while investigating the disease in Mexico City. Dr. Ricketts identified the causative organisms of Rocky Mountain spotted fever and typhus fever.

Dr. Wilder worked with Dr. Ricketts in Mexico City and, after the death of Dr. Ricketts, remained to complete the typhus investigation.

\* \* \*

One of the speakers at the annual convention of the Minnesota Society of Medical Technologists in Minneapolis on May 28 was Dr. George Moore, instructor in surgery at the University of Minnesota.

\* \* \*

After a discussion of socialized medicine by three Hibbing physicians, the Hibbing Chamber of Commerce went on record on April 19 as opposing the government health plan and sent telegrams to congressmen to that

## OF GENERAL INTEREST

effect. The disadvantages of the government plan were discribed to the group by Dr. Bertram S. Adams, Dr. Francis W. Bachnik and Andrew Sinamark, all of Hibbing.

\* \* \*

Hard-boiled treatment of the tuberculous person who, knowing he has the disease, exposes others, was recommended by Dr. Helen A. Dickie, of the University of Wisconsin School of Medicine, at the twenty-ninth annual meeting of the Tuberculosis and Health Association of St. Louis County in Duluth on April 19.

Such a person "is as much a homicidal criminal as the person who causes death violently," Dr. Dickie stated. "Kid-glove handling of problem cases is outdated. The public attitude toward such cases should not be just firm. It should be hardboiled," she told the association members.

Among the officers of the St. Louis County Tuberculosis and Health Association are Dr. G. A. Hedberg, Nopeming, first vice president; Dr. Robert P. Pearsall, Virginia, second vice president, and Dr. Mario Fischer, Duluth, treasurer.

\* \* \*

At a meeting of the Lyon-Lincoln County Medical Society in Marshall on May 4, Dr. L. O. Underdahl, Rochester, presented a paper on "Present-day Treatment for Hyperthyroidism."

\* \* \*

The regular spring chest clinic in Stillwater was conducted on April 25 by Dr. Karl H. Pfuetze, medical

director of Mineral Springs Sanatorium at Cannon Falls.

\* \* \*

Dr. R. F. Mears, Northfield, was elected chairman of the regional medical committee for the Saint Paul Red Cross Blood Center at a meeting in Saint Paul on May 10. As an advisory group, the committee will help direct the program in the 150-mile area covered by the blood-mobile which operates out of Saint Paul. Other regional officers of the committee are Dr. A. G. Liedloff, Mankato, vice chairman, and Dr. E. V. Goltz, Saint Paul, secretary.

\* \* \*

In Fairmont, Dr. E. A. Thayer has moved his offices into the former Bailey Hospital building, which he recently acquired. The building has not been used as a hospital for many years, but until recently it housed the offices of Dr. Robert Bailey, son of the founder, and Dr. Carl W. Krause. Dr. Bailey is no longer located in Fairmont, and Dr. Krause has transferred his offices to another building which he recently purchased.

\* \* \*

Dr. D. R. Gillespie, Saint Paul, has been named chairman of the Saint Paul Area Public Health Council, a group composed of representatives of fifty-two private and public health organizations. One of the vice chairmen of the council is Dr. Robert B. J. Schoch, Saint Paul.



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DEALERS IN DEPENDABLE MERCHANDISE

A continuation course in medicine for general practitioners was held May 12 through 14 at the University of Minnesota Center for Continuation Study. The general theme of the course was the study of blood and blood diseases and allergies. Among the guest speakers was Dr. Bruce K. Wiseman, chairman of the Ohio State University department of medicine.

\* \* \*

Superintendents of the state's ten mental hospitals met with state officials in Saint Paul on May 2 to plan the start of Minnesota's \$28,000,000 mental health program. The hospital heads conferred with Carl Jackson, state director of public institutions, and with Governor Luther Youngdahl to consider methods for improving the care of the state's 15,000 patients.

Among the superintendents who attended the conference were Dr. Stanley B. Lindley, Willmar; Dr. W. L. Patterson, Fergus Falls; Dr. E. J. Enberg, Faribault; Dr. M. C. Peterson, Rochester; Dr. Burton P. Grimes, St. Peter; Dr. Henry Hutchinson, Moose Lake; Dr. R. J. Gully, Cambridge, and Dr. Ralph Rosen, Hastings.

\* \* \*

The Otter Tail-Wilkin County Council of the American Legion, at a meeting in Henning on April 13, adopted a resolution that Minnesota members of congress be urged to push for a higher wage scale for medical employees of Veterans Administration hospitals and authorize the administration to meet outside competition in hiring physicians.

JUNE, 1949

Dr. Louis E. Prickman, Rochester, was elected president of the Central Clinical Research Club at a meeting of the organization in St. Louis late in April.

\* \* \*

A discussion on the topic, "Would We Benefit from a Compulsory Health Plan?" was held in the Hallie Q. Brown House, Saint Paul, on April 24. Speaking in favor of the plan were John C. Kidneigh, associate director of the University of Minnesota School of Social Work, and Dr. Max Seham, Minneapolis. Opposing the compulsory health plan were Dr. Herbert F. R. Plass, Minneapolis, and Dr. Charles E. Rea, Saint Paul.

\* \* \*

The University of Minnesota was recently granted \$2,940 by the American Heart Association to support the research of Dr. Roger M. Reinecke, assistant professor of physiology, who is studying the function of potassium in blood plasma in relation to contraction of the heart muscles.

\* \* \*

In Austin it was announced in April that a committee had been appointed to study the feasibility of forming a county-city public health organization. The committee planned to meet with Dr. Paul C. Leck, Austin physician, who had previously worked on a preliminary survey of community health.

\* \* \*

A former Saint Paul resident, Dr. Dean Clark, was recently named director of the Massachusetts General Hospital in Boston.

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At a meeting of the International Falls Rotary Club on April 20, Dr. Edward B. Kinports discussed the history of the army medical corps and the scientific improvements that have enlarged the scope of its service during hostilities.

\* \* \*

It was announced, in April that Dr. Kirk Douglas, formerly of Tacoma, Washington, had joined the staff of the St. Peter Clinic and was associated in practice with Dr. E. G. Olmanson. A graduate of the University of Minnesota Medical School in 1939, Dr. Douglas served his apprenticeship at Tacoma General Hospital and later entered private practice in Tacoma.

\* \* \*

A debate on compulsory health insurance was held in Rochester on May 2 under the sponsorship of the Association of Fellows of the Mayo Foundation. Engaging in the debate were Dr. J. W. Beeler, Dr. J. W. Faulkner, Dr. R. D. Miller, and Dr. E. E. Harnagel. Dr. James D. Rogers acted as moderator.

\* \* \*

It was announced late in April that Dr. Allen G. Janeky of Warroad would soon become associated in practice with Dr. A. A. Brink and Dr. Leonard Prochaska in Baudette. The three physicians plan to construct a modern clinic building in Baudette to house their offices.

\* \* \*

An outpatient mental hygiene service for children is expected to be available in Minneapolis by late summer. Known as the Washburn Memorial Clinic, the mental hygiene unit will occupy the first floor of the Martin wing of St. Barnabas Hospital.

The clinic is being established by the trustees of the Cadwallader C. Washburn estate, and the professional staff will be supervised by Dr. Donald W. Hastings, head of the department of psychiatry at the University of Minnesota. The plan to create the clinic is strongly supported by public and private agencies devoted to social work.

\* \* \*

Dr. Robert S. Clark, recently discharged from the navy, has announced his association in practice with the Richards Clinic in St. Cloud. A graduate of the University of Minnesota Medical School, Dr. Clark served his internship at Ancker Hospital, Saint Paul. In St. Cloud he will be associated as a general practitioner with Dr. W. B. Richards and Dr. F. L. Vrtiska.

\* \* \*

Dr. Olaf I. Sohlberg, Saint Paul, has been re-elected president of the Minnesota Medical Service. Other officers of the organization are Dr. Richard R. Cramer, Minneapolis, vice president; Dr. C. A. McKinlay, Minneapolis, secretary, and Dr. W. A. Coventry, Duluth, treasurer.

\* \* \*

During May, approximately 4,000 Minneapolis high school seniors received tuberculin skin tests and chest x-rays. The free tests were part of a tuberculosis prevention program sponsored by the Hennepin County Tuberculosis Association.



## Cook County Graduate School of Medicine ANNOUNCES CONTINUOUS COURSES

**SURGERY**—Intensive Course in Surgical Technique, Two Weeks, starting June 20, July 25, August 22.  
Surgical Technique, Surgical Anatomy and Clinical Surgery, Four Weeks, starting July 11, August 8, September 12.  
Surgical Anatomy and Clinical Surgery, Two Weeks, starting June 20, July 25, August 22.  
Surgery of Colon and Rectum, One Week, starting June 13, September 12.  
Esophageal Surgery, One Week, starting October 10.  
Thoracic Surgery, One Week, starting June 20.  
Breast and Thyroid Surgery, One Week, starting June 27.  
Fractures and Traumatic Surgery, Two Weeks, starting June 13.  
**GYNECOLOGY**—Intensive Course, Two Weeks, starting June 20, September 26.  
Vaginal Approach to Pelvic Surgery, One Week, starting June 13, September 19.  
**OBSTETRICS**—Intensive Course, Two Weeks, starting September 12.  
**MEDICINE**—Intensive General Course, Two Weeks, starting June 13.  
Gastroenterology, Two Weeks, starting June 27.  
Gastroscopy, Two Weeks, starting June 13, July 18.  
Electrocardiography and Heart Disease, Two Weeks, starting July 18.  
**PEDIATRICS**—Diagnosis and Treatment of Congenital Malformations of the Heart, Two Weeks, starting June 13.  
Personal Course in Cerebral Palsy, Two Weeks, starting August 1.  
**DERMATOLOGY**—Formal Course, Two Weeks, starting June 13. Informal Clinical Course every two weeks.  
**UROLOGY**—Intensive Course, Two Weeks, starting September 26. Ten Day Practical Course in Cystoscopy every two weeks.  
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Dr. William B. Gallagher began practice in Waseca in April, taking the place of his father, Dr. B. J. Gallagher, who was confined as a patient in a Rochester hospital. A graduate of the University of Minnesota Medical School, Dr. William Gallagher served his internship at Milwaukee County Hospital, Milwaukee.

\* \* \*

An effort to persuade thirty interns in Twin Cities hospitals to enter the state hospital system was made at a dinner meeting in Hastings on May 13.

The advantages of serving in state mental hospitals were pointed out to the interns by Governor Luther Youngdahl, Dr. F. J. Braceland, head of psychiatry at the Mayo Clinic, and his associate Dr. Howard Rome. Governor Youngdahl said that Minnesota can now pay "fairly decent financial remuneration." "In addition," he said, "we have a lot of fine men in the state hospital system, and we intend to get others who represent the best in the country."

Dr. Braceland stated that although epidemics are now fairly well controlled, "there is going to be an increase in nervous diseases because of the kind of world we live in. . . . But no matter what branch of medicine you choose to follow, you'll find it here in the state hospital."

Reminding the interns that emotional problems are a component of illness in a large percentage of patients, Dr. Rome said, "The frontiers of medicine lie in psychiatry. The fields of research and psychiatry are limitless."

JUNE, 1949

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A talk on socialized medicine was given by Dr. W. B. Richards, St. Cloud, at a joint meeting of the Women's Society of World Service and the Brotherhood of the Evangelical United Brethren Church in St. Cloud on May 12.

\* \* \*

On March 26, Governor Luther Youngdahl signed a bill providing that unclaimed pound animals, which would otherwise be destroyed, be made available to biological institutions within the state. Minnesota thus became the first state to provide for statewide assistance in the procurement of animals for medical, dental and veterinary studies. About twenty municipalities had previously taken similar action.

The action of the Minnesota State Legislature is in contrast to the experience in Massachusetts, Pennsylvania and Illinois, where the opposition of the antivivisectionists is aided by the Hearst newspapers. The Minnesota law provides for licensing research institutions by the State Livestock Sanitary Board, which reserves the right to inspect or investigate at any time any institution that has applied for or received a license.

\* \* \*

In 1933 the maternal death rate of 6.2 per 1000 live births placed our country in eleventh place among the leading countries of the world. In 1947 the rate had dropped to 1.3, which probably was not surpassed by any other country. None of the states had a rate above 2.6. Connecticut, Delaware, Iowa, Massachusetts, Minnesota, Oregon, Rhode Island, Utah and Wyoming re-

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ported rates less than 1.0, with Minnesota the lowest at 0.6. For whites, the rate declined from 5.6 to 1.1, and for nonwhites, from 9.7 to 3.3, during this period.

\* \* \*

The Hebrew University—Hadassah Medical School, the first medical school to be established in the new state of Israel, opened its doors on May 17 as a joint undertaking of the Hebrew University and Hadassah, the Women's Zionist Organization of America. Until security conditions permit continuation of construction on Mt. Scopus, the school will be housed in four hospital units in Jerusalem. A campaign sponsored by Hadassah and the American Friends of the Hebrew University is presently engaged in raising the \$5,500,000 needed to complete the school. Almost \$4,000,000 has already been raised.

\* \* \*

Dr. William F. Maertz, after practicing at New Prague since 1919, moved to Saint Paul in September, 1944, and temporarily occupied the office of Dr. C. L. Cain at 474 South Hamline. Upon Dr. Cain's return from service, Dr. Maertz opened an office at 658 Grand Avenue, where he is now practicing.

\* \* \*

Among physicians attending a continuation course in medicine for general practitioners, held at the University of Minnesota May 12 through 14, was Dr. Joseph F. Schaefer, Owatonna.

\* \* \*

"A Doctor's Viewpoint on Socialized Medicine" was the title of a talk presented by Dr. Karl E. Johnson, Duluth, at a meeting of the West End Business and Civic Club in Duluth on May 17.

\* \* \*

On May 18, Governor Luther Youngdahl appointed Dr. H. W. Woltman, Rochester, Dr. E. M. Hammes, Saint Paul, and Dr. H. S. Diehl, University of Minnesota, to an advisory board to help choose a state commissioner of mental health.

\* \* \*

In honor of fifty years of medical service, most of them spent in Glenwood, tribute was paid to Dr. J. R. Elsey at a dinner in Glenwood during the middle of May. The Glenwood Community Hospital staff and friends presented Dr. Elsey with a recording machine

## OF GENERAL INTEREST

in appreciation of his years of service to residents of the area. Dr. Elsey has practiced in Glenwood since 1904.

\* \* \*

Included as lecturers at a short course in dermatology at the University of Minnesota's Center for Continuation Study on May 16 and 17 were Dr. Paul A. O'Leary and Dr. Hamilton Montgomery, Rochester, who spoke on the diagnosis and management of skin disorders.

\* \* \*

Dr. L. F. Richdorf and Dr. R. W. Gibbs, associates in the practice of pediatrics with offices formerly in the Medical Arts Building, Minneapolis, announce their removal to offices in the Loring Medical Building, 1409 Willow Street, Minneapolis.

\* \* \*

Dr. Zondal R. Miller opened an office May 1, 1949, at 1065 Lowry Medical Arts Building, Saint Paul, for the practice of neurology and psychiatry. Dr. Miller graduated from the University of Minnesota Medical School in 1943, interned at the Navy Hospital, Long Beach, California, and served as a lieutenant (jg), in the Pacific area until December, 1945. He recently completed a residency in neurology and psychiatry at the University and Veterans Hospitals, Minneapolis.

\* \* \*

Dr. Harry L. Plotke opened an office April 1, 1949, at 1058 Lowry Medical Arts Building, for the practice of ophthalmology. A graduate of the University of Minnesota Medical School in 1937, Dr. Plotke interned at Ancker Hospital, Saint Paul, practiced general medi-

cine at Little Falls, Minnesota, and served with the army from March, 1941 to January, 1946, having been a major on his discharge. He recently completed a residency in ophthalmology at the Veterans Hospital, Minneapolis.

\* \* \*

### HOSPITAL NEWS

Seven new members have been admitted to the medical staff of Glenwood Hills Hospitals, Minneapolis, it was announced on May 10. The new members are Dr. Eric Kent Clarke, Dr. George M. Cowan, Dr. Stanley G. Law, Dr. Zondal R. Miller, Dr. Leonard A. Titrud, Dr. David S. Thorsen, and Dr. Martin Sukov. Their appointment brings the hospitals' medical staff to nineteen members.

\* \* \*

### BLUE SHIELD NEWS

To date this year, Blue Shield had made payment on 6,734 medical claims in the total amount of \$264,321.42. Payment was made for 1,857 cases during April amounting to \$73,204.85. Medical payments for April totaled \$18,600.50; surgical payments for April totaled \$49,878.85, and obstetrical payments for April totaled \$4,725.50. Approximately 100 claims for Blue Shield benefits are originated daily, the average weekly payment on such claims amounting to about \$17,000,000. At the end of April, approximately 180,000 people in Minnesota were eligible for Blue Shield benefits.

Blue Shield is unique in that its business requires the close attention and co-operation of people outside the office itself. Its efficient administration is just as de-


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pendent on the doctor and his office personnel as it is on the employees of Minnesota Medical Service, Inc. With this thought in mind, a series of luncheon meetings is being held to which doctors, nurses, secretaries, technicians, and other office personnel are invited. The benefits of the Blue Shield contract are reviewed and discussed, and the actual processing of medical claims is outlined. The most direct contact with the Blue Shield subscriber is through the doctor's office personnel; therefore, it is believed these meetings are of inestimable value to all concerned. Each doctor's office will be contacted relative to these meetings, and it is urged that every effort be made to have at least one representative of each office attend.

The Blue Shield office wishes to acknowledge the courtesy and interest shown its exhibit during the annual meeting of Minnesota State Medical Association. It was particularly gratifying to have an opportunity to meet personally many of the doctors with whom Blue Shield business is transacted.



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## BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

**MEDICINE THROUGHOUT ANTIQUITY.** Benjamin Lee Gordon, M.D. Member American Association of the History of Medicine and American Academy of Ophthalmology and Otolaryngology. Attending Ophthalmologist to Shore Memorial Hospital, Somers Point, New Jersey, and to Atlantic County Hospital for Tuberculous Diseases and Atlantic County Hospital for Mental Diseases, Northfield, New Jersey. Authorized Medical Examiner for Civil Aeronautics Administration, Department of Commerce, Washington, D. C. Author of "The Romance of Medicine." 818 pages. Illus. Price \$6.00, cloth. Philadelphia: F. A. Davis Co., 1949.

**HANDBOOK OF MATERIA MEDICA, TOXICOLOGY AND PHARMACOLOGY.** For Students and Practitioners of Medicine. Fourth Edition. Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B. Consultant and Toxicologist, Minneapolis, Minnesota. Formerly Assistant Professor of Pharmacology in the School of Medicine, University of Arkansas, Little Rock; Medical Department, Upjohn Company, Kalamazoo, Michigan; Assistant Professor of Pharmacology, University of Tennessee Medical School; Toxicologist to University Clinics, Memphis, Tennessee. 730 pages. Illus. Price \$8.50, cloth. St. Louis: C. V. Mosby Co., 1949.

\* \* \*

**PREOPERATIVE AND POSTOPERATIVE CARE OF SURGICAL PATIENTS.** Hugh C. Ikenfritz, A.B., M.D., F.A.C.S. 898 pages. Illus. St. Louis: C. V. Mosby Co., 1948.

This comprehensive book discusses preoperative and postoperative care with a somewhat different viewpoint than the average. There are extensive chapters on fluid and electrolyte balance, metabolism and nutrition, as well as the general preoperative, sedative and postoperative measures.

Shock, transfusions and systemic complications are treated separately and very thoroughly. The use of chemotherapy and antibiotic drugs are very fully discussed and are up to date in all its phases. The various systems are treated separately in regard to surgery except for urologic surgery. The only references to the urinary tract are in regard to complications of other diseases, and the reasons for its omission are not indicated in the book. This is a field in which many general surgeons are interested, and as it is assumed that this book is intended for that group of surgeons; its omission would appear ill advised.

The Appendix lists various aids to diagnosis in regard to x-ray, and illustrates various methods of intravenous infusion and oxygen therapy.

On the whole, this book is an excellent review of the subject with the exception noted of the omission of urinary tract surgical care.

C. M. BAGLEY, M.D.



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**OPERATIVE SURGERY.** By Frederick C. Hill, B.A., M.S. (Surg.), M.D., Associate Professor of Surgery, The Creighton University School of Medicine, Omaha, Nebraska. Foreword by Charles W. Mayo, B.A., M.S. (Surg.), M.D., Section on Surgery, Mayo Clinic, Rochester, Minnesota. Illus. 698 pages. \$12.75. New York: Oxford University Press, 1949.

This book is designed primarily for the intern, resident and less experienced surgeon, and except for brief notes on preoperative and postoperative care and the lesions involving various organs, it deals purely with surgical technique. Diagnosis and indications are only lightly touched upon. The author, who is associate professor of surgery at Creighton University and received his formal training at the Mayo Clinic, claims no originality of material.

The first chapters are concerned with general principles, the handling of instruments, sutures and knot tying. Popular methods of suturing are illustrated. Subsequent chapters include descriptions of the more common operations performed in general surgery, gynecology and genito-urinary surgery. As a rule, one operation is described in detail for each surgical condition mentioned, preceded by a brief description of the gross pathologic condition concerned. These are standard procedures reflecting the author's preference and training.

The text is clear and concise, and the illustrations are well done but limited in number and detail. The sections on thyroid, breast, gastrointestinal tract and uterus are given special attention, and numerous drawings supplement these chapters. Otherwise only two or three figures appear with each operation.

This volume can be recommended to those entering

the field of general surgery as an authoritative work on accepted surgical techniques. Nothing is included which does not have practical application and has not withstood the test of time.

EDWARD W. SICKELS, M.D.

## Classified Advertising

*Replies to advertisements with key numbers should be mailed in care of MINNESOTA MEDICINE, 2642 University Avenue, Saint Paul 4, Minn.*

**LOCATION WANTED**—Physician, aged 32, Class A school, 1½ years rotating internship and one year training in general surgery and E.E.N. and T., all at a large charity hospital, wishes location for General Practice. Prefers Northwest. Address E-150, c/o MINNESOTA MEDICINE.

**WANTED**—M.D. trained in obstetrics and pediatrics to join new clinic now being organized in central Iowa town of 7500. New air-conditioned, ground floor offices. Write E-128, care MINNESOTA MEDICINE.

**FOR SALE**—Complete x-ray equipment in good condition; also Victor electrical treatment apparatus. Time to pay, if desired. Make me an offer on all. Address E-132, care MINNESOTA MEDICINE.

**WANTED**: Superintendent for 20-bed hospital in city of 2500 in western Minnesota. Address E-125, care MINNESOTA MEDICINE.

**WANTED**—Young general practitioner in town of 600, located in thickly settled diversified farm area. Good hospitals seven and eleven miles. Businessmen will furnish liberal financial aid to give good man start. Write Carl W. Dahlquist, Secretary, Commercial Club, Verdale, Minnesota.

**RESIDENT PHYSICIAN**—Opening for two Resident Physicians, March 1 and July 1, 1949. Mixed residency, excellent preparation for general practice. Salary \$300 a month and maintenance, or \$300 a month plus three-room apartment. Address inquiries Administrator, St. Luke's Hospital, Saint Paul, Minnesota.

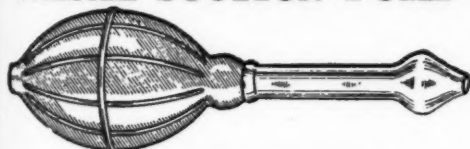
**WANTED**—Assistant in general practice, Southeastern Minnesota town, with general hospital. \$400.00 a month plus car for business purposes. Address E-138, care MINNESOTA MEDICINE.

**WANTED**—Young M.D. interested in a permanent association. Location in Lake Minnetonka area, 25 minutes from downtown Minneapolis. Apartment is available. If interested, write full particulars concerning self. Address E-151 care MINNESOTA MEDICINE.

**WANTED**—Hospital Superintendent, X-Ray and Laboratory Technician, Nurses, for a new 20-bed community hospital to be opened in August, 1949. Write Greenbush Community Hospital Association, Greenbush, Minnesota.

**LOCATION WANTED**—Surgeon, 36, three years' approved training, desires location. Group association preferred. For details, write E-152, care MINNESOTA MEDICINE.

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